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ABSTRACT

This reference is intended for teachers who are responsible for selecting textbooks for biology or life science courses. The publication provides reviewers with a compilation of 10 biology and 7 life science textbook reviews. Using this document as a resource, teachers can save valuable time by reducing the number of books they review and pilot studies they conduct. For each textbook series, there is a description of the materials, and reviews of the student edition, the process skills in the student edition, the teachers edition, the laboratory manual, and the teachers edition of the laboratory manual. Factual inaccuracies in the materials are noted. (CW)

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SE 051 165

SECONDARY
TEXTBOOK
REVIEW:

Biology and Life Science

Grades Nine Through Twelve

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A list of other publications that are available from the Department may be found on page 403 of this publication.

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Biological Science: An Ecological Approach, 1987 98

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Biology: Living Systems, 1986 122

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PREFACE

The *Secondary Textbook Review: Biology and Life Science* represents the State Department of Education's most recent effort to offer teachers a resource that they can use when they select textbooks. The importance of textbooks for instruction has been well documented. The lack of a variety of resources to assist teachers in selecting textbooks is also well known. Therefore, this review process, based on information from the *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve*, the *Model Curriculum Standards: Grades Nine Through Twelve*, and the *Statement on Preparation in Natural Science Expected of Entering Freshmen*, is designed to fill this need at least partially. (For information about ordering these publications, see pages 403 and 404.)

Fifty-five persons donated their professional expertise and time to develop and execute this factual review of biology and life science textbooks. Included in that group are three representatives from the publishing industry who served as members of the Steering Committee. The findings from this review of life science and biology textbooks appear on page x in the section, "Findings from This Review Process."

We welcome constructive comments that would enable this process to be more responsive to textbook selectors' needs. Please send your comments to the Office of Curriculum Framework and Textbook Development, California State Department of Education, P.O. Box 944272, Sacramento, CA 94244-2720.

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ACKNOWLEDGMENTS

The State Department of Education recognizes and extends its appreciation to everyone who assisted in developing this document.

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A special thanks is extended to Ernie Gomez, who, working with staff members from the State Department of Education, undertook a major role in checking the reviews for consistency and accuracy.

The *Secondary Textbook Review: Biology and Life Science* was prepared by the Curriculum Framework and Textbook Development Unit and the Mathematics, Science, and Environmental Education Unit, California State Department of Education. Leadership and guidance for this process were provided by:

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Judy Stucki, Associate Governmental Program Analyst
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FINDINGS FROM THIS REVIEW PROCESS

Because of the factual nature of this review, the findings noted in this section were strictly limited to the data obtained from the textbook reviewers.

Two *overall* findings emerged from the review:

1. The laboratory activities in both the students' textbooks and laboratory manuals focus on students' use of the lower-order process skills of *observing*, *communicating*, *comparing*, and *organizing*.
2. With few exceptions the students' textbooks and the laboratory manuals neither explain nor reinforce the higher-order process skills of *relating*, *inferring*, and *applying*.

Biology

Findings in the review of the ten biology textbooks included the following:

1. A wealth of information is provided about each of the major content areas in the biology review instrument; for example, "What is biology?" "Ecology," "Heredity," "Evolution," and so forth.
2. Every biology textbook contains information about human biology.

Life Science

Findings revealed by the review of seven life science textbooks were that:

1. The coverage of all animal phyla and of human physiology was strong; however, coverage of human diseases was universally weak; for example, the modes of transmission, symptoms, and methods of preventing sexually transmitted diseases.
2. Although many textbooks thoroughly covered the topic, "factual basis for evolution; e.g., anatomical evidence and fossil records," a majority of textbooks barely mentioned the "historical development of systems of classification; e.g., Aristotle and Linnaeus."
3. Of all the major content areas in the life science review instrument, ecological issues received the greatest emphasis.

To understand the implications of these findings, please read the next section, "Using This Resource," which captures not only the chronology but also the rationale for each step of the review process.

USING THIS RESOURCE

The *Secondary Textbook Review: Biology and Life Science* is intended as a resource for teachers who are responsible for selecting textbooks for biology or life science courses in high school. This publication provides teachers with a compilation of ten biology and seven life science textbook reviews. Using this document as a resource, teachers can save valuable time by reducing the number of books they review and pilot studies they conduct. After studying the reviews, teachers may wish to review two or three of the textbooks more thoroughly.

If teachers are interested in reviewing textbooks not included in this publication, they may adopt or adapt the review instruments in this document in order to reflect their districts' curricular emphases.

Factual Review

This process focuses on a "factual" review of content and process skills. To conduct a factual review, the textbook reviewers carefully note the pages in the textbook where a specific topic is explained or reinforced. After reviewing the entire book, the reviewers factually determine the degree of emphasis that each topic is given by tabulating the number of times the topic was covered. The factual decisions, then, are based on a quantitative analysis of content and process skills rather than on qualitative judgments. Teachers are the ones who must make these qualitative judgments based on course requirements, the number and complexity of concepts in the textbook, the students' skill levels, the motivation of specific groups of students, and other significant factors that influence learning. Teachers ultimately must weigh all of this information and more as they make decisions about the quality of specific textbooks.

Textbooks Reviewed

An informal survey of the 20 largest California school districts indicated which textbooks are used most in high school classrooms. Five of the biology textbooks and six of the life science textbooks, top-ranked according to use, were reviewed. Thus, this document does not include reviews of all of the biology and life science textbooks used in high school classrooms. This restriction was necessary because of limited funding available for this project.

To gain a national perspective on current textbook usage, the staff sent a copy of a survey along with a copy of the *Model Curriculum Standards: Grades Nine Through Twelve* to more than 300 publishers. They were asked to study the *Standards* and to nominate for review those textbooks which reflected the philosophy and instructional strategies set forth in that document. The nominations were studied; and some textbooks, not widely used in California classrooms, were also included in the review process. Thus, ten biology and seven life science textbooks are reviewed in this document. Each publisher provided students' and teachers' editions of the textbooks and the laboratory manuals.

The Textbook Review Process

Early in the review process, a small Prototype Committee composed of science educators was called together to take the first step in developing factual review instruments for biology and life science textbooks. Their basic resource documents were the *Model Curriculum Standards: Grades Nine Through Twelve*, the *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve*, and, additionally for biology, the *Statement on Preparation in Natural Science Expected of Entering Freshmen*. The Steering Committee, a larger group of science teachers and science curriculum experts, used the products from the Prototype Committee to develop the review instruments. The Steering Committee members also worked with the three basic resources used by the Prototype Committee as they developed separate review instruments for biology and life science textbooks.

Every review includes the four parts of the instrument and a textbook description which appears in the Appendix.

Part I. The Student's Edition

This section of the review instrument provides information about the extent to which the emphasis on *content* is given each of the topics in the student's edition of the textbooks reviewed. These topics were extracted from the three basic resources used by the Prototype and Steering committee members.

For each specific topic the "extent included" is determined by applying the following definitions:

High Emphasis means that this topic is explained and reinforced by *many* examples in several places throughout the textbook.

Substantial Emphasis means that the topic is explained and reinforced by *many* examples but primarily is limited to a *single chapter*.

Moderate Emphasis means that the topic is explained and reinforced by a *few* examples, but it is not the main subject of a chapter.

Limited Emphasis means that the topic is explained and/or illustrated by a *single* example.

Not Covered means that information about the topic is *not* present.

Please note the following:

If the topic has more than one element, the "Degree of Emphasis" indicated does not mean that each element is covered to that degree. For example, when a topic with multiple elements received an *ME (Moderate Emphasis)*, it could mean that *all* of the elements were present in the textbook to a moderate degree. Conversely, *ME* may mean that only *one* or *two* of the elements were covered to a moderate degree.

Factual Inaccuracies

Teachers expect concepts and facts to be presented accurately in textbooks. When the textbook reviewers cited factual inaccuracies, staff with expertise in this content area researched the material in question. The inaccuracies that were validated were brought to the attention of individual publishers. If the publishers responded by acknowledging the inaccuracy and gave assurances that it would be corrected in the next edition of the book being reviewed, a symbol denoting this agreement was placed in the section where the factual inaccuracy occurred. A footnote acknowledges the publisher's assurance. Specific information about the factual inaccuracies may be obtained from the Office of Curriculum Framework and Textbook Development; telephone (916) 323-2600.

Part II. Process Skills in the Student's Edition

This section focuses on teaching students the *process skills* appearing throughout the textbook.

Part III. The Teacher's Edition

The topics that the Steering Committee deemed to be especially helpful in teachers' editions of the students' textbooks appear in this section.

Part IV. The Student's Laboratory Manual

The student's laboratory manual is the focus of this section. Both *content* and *process skills* are reviewed.

Part V. The Teacher's Edition of the Laboratory Manual

This section includes topics, again identified by the Steering Committee, which are particularly pertinent in the teacher's edition of the laboratory manual.

Appendix

Factual textbook descriptions that contain information about the organization of the students' textbooks and related program components are compiled in this section.

Evaluative Reviews from Other Sources

In contrast to the factual findings contained in this publication, evaluative reviews offer subjective judgments that deal with a textbook's quality. Districts choosing to consult one or more of the evaluative sources are encouraged first to work with staff members who will be using the new textbooks. This collaborative approach will focus and prioritize their collective concerns. The following evaluative review sources will provide additional points of view:

Science Books and Films

Published by:

The American Association for the
Advancement of Science
1333 H Street, N.W.
Washington, DC 20005

Quarterly Review of Biology

Published by:

Quarterly Review of Biology
State University of New York
Stony Brook, NY 11794-5275

Bookwatch Reviews

Published by:

The National Center for Science Education, Inc.
P.O. Box 9477
Berkeley, CA 94709

Consumers' Guide to Biology Textbooks.
by Moyer, Wayne A., and William V. Mayer.
Washington, D.C.: People for the American Way, 1985.

Available from:

People for the American Way
2000 M St., N.W., Suite 400
Washington, DC 20036

Conclusion

This publication reflects the time and expertise donated by educators and publishers who believe that this information has value for busy teachers. If biology and life science teachers use this resource when they select textbooks, then the efforts of everyone who participated in developing this document will be amply rewarded.

SECONDARY TEXTBOOK REVIEW:

Biology

PUBLISHER	TITLE	COPYRIGHT
Addison-Wesley Publishing Company	***Biology: A Systems Approach***	**1988**

I. BIOLOGY: CONTENT (STUDENT'S EDITION)

DEFINITION OF TERMS

DEGREE OF EMPHASIS

HIGH EMPHASIS means that the topic is explained and reinforced by *many* examples in several places throughout the textbook.

SUBSTANTIAL EMPHASIS means that the topic is explained and reinforced by *many* examples but primarily is limited to a *single chapter*.

MODERATE EMPHASIS means that the topic is explained and reinforced by a *few* examples, but it is not the main subject of a chapter.

LIMITED EMPHASIS means that the topic is explained and/or illustrated by a *single* example.

NOT COVERED means that information about the topic is *not* present.

Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. What is biology? To what extent does the textbook include discussions about: 1. The distinguishing characteristics of life; e.g., reproduction and growth? (*Science Framework Addendum*, p. 14)			X		
2. Scientific reasoning; e.g., induction, deduction, observation, fact, hypothesis, theory, and inference? (*Science Framework Addendum*, pp. 8, 12; *Standards,*[*] p. S-1; *Statement,*[†] p. 9)				X	
3. Research methods and tools of biologists; e.g., microscopes, centrifuge, and metric measurement? (*Science Framework Addendum*, pp. 23, 26, 27)			X		
4. Science, Technology, Individuals, and Society (STIS) issues; e.g., health, ethical concerns, careers, and economic impact? (*Science Framework Addendum*, p. 13; *Statement*, Number 13 and Number 16, p. 20)	X				

___ Factual inaccuracies, if any, in the preceding section[‡]					
B. Ecology To what extent does the textbook include discussions about: 1. Diversity and stability in ecosystems? (*Science Framework Addendum*, pp. 41–42)			X		
2. Biotic and abiotic interrelationships; e.g., chains, cycles (such as carbon, nitrogen, and water), and symbiotic relationships? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11; *Statement*, Number 4, p. 18)			X		
3. Levels of ecological organization; e.g., communities, biomes, and populations? (*Science Framework Addendum*, pp. 39, 42; *Standards*, Number 4, p. S-5, and Number 16, p. S-11; *Statement*, Number 11, p. 19)		X			
4. The energy flow through the ecosystem; e.g., trophic levels and energy pyramids? (*Science Framework Addendum*, p. 40; *Statement*, Number 4, p. 18, and Number 11, p. 19)			X		
5. The impact of society on the natural environment; e.g., pollution, endangered species, resource depletion, and recycling? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11; *Statement*, Number 4, p. 18, and Number 11, p. 20)	X				
___ Factual inaccuracies, if any, in the preceding section					
C. Heredity To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Mendel, Morgan, Sutton, Watson, and Crick? (*Science Framework Addendum*, p. 8; *Standards*, Number 12, p. S-9, and Number 14, p. S-10; *Statement*, p. 12)		X			

NOTE: The secondary biology textbook review instrument is correlated with the following resource documents:

- The *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve* is cited as *Science Framework Addendum*.
- [*] *Model Curriculum Standards: Grades Nine Through Twelve* is cited as *Standards*.
- [†] The *Statement on Preparation in Natural Science Expected of Entering Freshmen* is cited as *Statement*.

The first two documents are published by the California State Department of Education. The last one listed was issued by the Academic Senates of the California Community Colleges, the California State University, and the University of California in cooperation with the California Round Table on Educational Opportunity. Each publication is available from the California State Department of Education (see pages 403 and 404 for ordering information).

[‡] See "Factual Inaccuracies" on page xii.

PUBLISHER	TITLE	COPYRIGHT
Addison-Wesley Publishing Company	***Biology: A Systems Approach***	**1988**

I. BIOLOGY: CONTENT (STUDENT'S EDITION)—Continued

DEFINITION OF TERMS

DEGREE OF EMPHASIS

HIGH EMPHASIS means that the topic is explained and reinforced by *many* examples in several places throughout the textbook.

SUBSTANTIAL EMPHASIS means that the topic is explained and reinforced by *many* examples but primarily is limited to a *single chapter*.

MODERATE EMPHASIS means that the topic is explained and reinforced by a *few* examples, but it is not the main subject of a chapter.

LIMITED EMPHASIS means that the topic is explained and/or illustrated by a *single* example.

NOT COVERED means that information about the topic is *not* present.

Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
C. Heredity—Continued					
2. Scientific tools to model heredity; e.g., probability, statistics, and pedigrees? (*Science Framework Addendum*, p. 20; *Standards*, Number 14, p. S-10)			X		
3. Cell cycle, meiosis, and mitosis? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 5, p. 18)		X			
4. Chromosomes, genes, DNA, and RNA? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)		X			
5. Biochemical aspects of heredity; e.g., transcription, translation, and protein synthesis? (*Science Framework Addendum*, p. 19; *Statement*, Number 7, p. 18)				X	

6. Gene and chromosome mutations; e.g., inversions, insertions, and nonsense codons? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)				X	
7. Human genetic variability; e.g., color blindness, baldness, and blood groups? (*Science Framework Addendum*, p. 17; *Standards*, Number 14, p. S-10; *Statement*, Number 7, p. 18)			X		
8. The influence of heredity on health and disease; e.g., sickle-cell anemia, hemophilia, and Down's syndrome? (*Standards*, Number 12, p. S-9; *Statement*, Number 13, p. 20)		X			
9. STIS issues; e.g., selective breeding and techniques and ethics of genetic engineering? (*Science Framework Addendum*, pp. 19–20; *Statement*, Number 5, p. 18, and Number 13, p. 20)			X		
__ Factual inaccuracies, if any, in the preceding section					
D. Evolution To what extent does the textbook include discussions about: 1. The genetic basis of evolution; e.g., genes as the source of variation? (*Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)				X	
2. A historical perspective; e.g., works of Lamarck, Wallace, and Darwin? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1, and Number 15, p. S-11; *Statement*, p. 12, and Number 6, p. 18)				X	
3. Scientific evidence; e.g., paleontology, genetics, biochemistry, and comparative anatomy? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 6, p. 18)			X		
4. Fossil evidence for evolution; e.g., skeletons, pollen, dating methods, and sequence of fossil forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)				X	
5. Evolutionary processes and their effects; e.g., selection, drift, adaptation, speciation, and extinction? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11)			X		

PUBLISHER	TITLE	COPYRIGHT
Addison-Wesley Publishing Company	***Biology: A Systems Approach***	**1988**

I. BIOLOGY: CONTENT (STUDENT'S EDITION)—Continued

DEFINITION OF TERMS

DEGREE OF EMPHASIS

HIGH EMPHASIS means that the topic is explained and reinforced by *many* examples in several places throughout the textbook.

SUBSTANTIAL EMPHASIS means that the topic is explained and reinforced by *many* examples but primarily is limited to a *single chapter*.

MODERATE EMPHASIS means that the topic is explained and reinforced by a *few* examples, but it is not the main subject of a chapter.

LIMITED EMPHASIS means that the topic is explained and/or illustrated by a *single* example.

NOT COVERED means that information about the topic is *not* present.

Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
D. Evolution—Continued					
6. Scientific theories about the origin of life; e.g., inorganic to organic? (*Science Framework Addendum*, p. 24; *Statement*, Number 6, p. 18)			X		
7. The history of life on earth; e.g., evolution from unicellular to multicellular and more specialized forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)				X	
8. Human evolution; e.g., paleoanthropology and the work on "Lucy"? (*Science Framework Addendum*, p. 35; *Statement*, Number 6, p. 18)		X			
___ Factual inaccuracies, if any, in the preceding section					

E. Classification To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Aristotle and Linnaeus? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		
2. Evolutionary relationships as the basis of classification? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 8, p. 19)				X	
3. Principles of classification; e.g., hierarchy and binomial nomenclature? (*Standards*, Number 3, p. S-5; *Statement*, Number 8, p. 19)		X			
4. Comparative anatomy, genetic structure (phenotypes), and biochemistry as data sets for classification? (*Science Framework Addendum*, p. 20; *Statement*, Number 8, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					
F. Chemistry To what extent does the textbook include discussions about: 1. Atoms, molecules, chemical bonds, reactions, and the periodic table? (*Science Framework Addendum*, p. 24; *Statement*, Number 2, p. 17)		X			
2. The structure and function of molecules in living things; e.g., proteins, nucleic acids, lipids, and polysaccarides? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 2, p. 17)			X		
3. Energy processes; e.g., laws of thermodynamics, diffusion, osmosis, and enzyme kinetics? (*Science Framework Addendum*, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					
G. Cells To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Hook, Schleiden, Schwann, and Virchow? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		

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I. BIOLOGY: CONTENT (STUDENT'S EDITION)—Continued

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G. Cells—Continued					
2. The structure and function of cells and cell components, including the similarities and differences between plant and animal cells? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 1, p. 17)	X				
3. Cellular homeostasis? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)				X	
4. Cellular respiration? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)		X			
5. Photosynthesis? (*Science Framework Addendum*, p. 24; *Standards*, Number 11, p. S-9; *Statement*, Number 14, p. 18)		X			

6. Levels of organization, cells to systems? (*Standards*, Number 2, p. S-4; *Statement*, Number 3, p. 18)	X				
___ Factual inaccuracies, if any, in the preceding section					
H. Viruses To what extent does the textbook include discussions about: 1. The taxonomy of viruses; e.g., rhinoviruses, herpes simplex, and retroviruses? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)				X	
2. A historical perspective; e.g., tobacco mosaic virus, polio, Jenner, or Pasteur? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
3. The viral structures and their functions? (*Science Framework Addendum*, p. 27; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)				X	
4. Reproduction; e.g., invasion? (*Science Framework Addendum*, p. 27; *Statement*, Number 5, p. 18)				X	
5. STIS issues: nature of viral diseases and their social and economic impact; e.g., AIDS, influenza, and German measles? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					
I. Monera To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of monera? (*Science Framework Addendum*, pp. 15, 18; *Statement*, Number 10, p. 19)				X	
2. A historical perspective; e.g., Pasteur or Koch? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
3. The distinguishing structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		

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I. Monera—Continued					
4. Reproduction? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)				X	
5. Diseases caused by monera; e.g., strep throat, urinary tract infections, and STDs? (*Science Framework Addendum*, p. 27)			X		
6. Interrelationships with other living things and the environment; e.g., nitrogen fixation and decomposition? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)			X		
7. STIS issues; e.g., food production, waste disposal, pollution, and genetic engineering? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					

J. Protists To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of protists? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		
2. Protists' structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		
3. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)				X	
4. Diseases caused by protists; e.g., gingivitis, dysentery, and malaria? (*Science Framework Addendum*, p. 27; *Statement*, Number 10, p. 19)			X		
5. Interrelationships with other living things and the environment; e.g., symbiosis? (*Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)				X	
6. STIS issues; e.g., food sanitation, industrial products, waste disposal, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 10, p. 19)				X	
___ Factual inaccuracies, if any, in the preceding section					
K. Fungi To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of fungi? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)				X	
2. A historical perspective; e.g., Fleming? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
3. The fungal structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		
4. Growth and development? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)					X

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K. Fungi—Continued					
5. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)				X	
6. Diseases caused by fungi; e.g., ringworm, yeast infection, athlete's foot, smuts, and rusts? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)				X	
7. Interrelationships with other living things and the environment; e.g., decomposition, symbiosis (lichen), and mycorrhiza? (*Standards*, Number 10, p. S-8; *Statement*, Number 10, p. 19)				X	
8. STIS issues; e.g., food (toxic mushrooms), beverages, antibiotics, and fungicides? (*Science Framework Addendum*, p. 26; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		

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L. Plants To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of plants? (*Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)				X	
2. Plant structures and their functions; e.g., photosynthesis, food storage, and transport? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8, and Number 11, p. S-9; *Statement*, Number 10, p. 19)			X		
3. Adaptations for land existence? (*Science Framework Addendum*, pp. 18, 22, 24; *Statement*, p. 16, Number 10, p. 19)				X	
4. Growth and development, including the role of hormones? (*Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)			X		
5. Propagation and reproduction, including role of pollinators? (*Science Framework Addendum*, p. 25; *Statement*, Number 5, p. 18)		X			
6. Response to stimuli? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8)			X		
7. Health and disease states of plants; e.g., nutrient deficiencies and parasites? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)					X
8. STIS issues; e.g., horticulture and environmental concerns, timber harvest, defolients, and endangered species? (*Science Framework Addendum*, p. 25; *Standards*, Number 10, p. S-8, Number 16, p. S-11, and Number 17, p. S-12)				X	
___ Factual inaccuracies, if any, in the preceding section					
M. Animals To what extent does the textbook include discussions about: 1. The taxonomic diversity of animals? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)		X			

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
M. Animals—Continued 2. Invertebrates To what extent does the textbook include discussions about: a. Invertebrate structures and their functions; e.g., systems, symmetry? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)		X			
b. Evolutionary relationships and fossil histories? (*Standards*, Number 15, p. S-11; *Statement*, p. 16, and Number 9, p. 19)			X		
c. Adaptations; e.g., for feeding and locomotion? (*Standards*, Number 15, p. S-11)		X			
d. Growth, development, and embryology? (*Science Framework Addendum*, pp. 30–31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)				X	

e. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 30; *Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18, and Number 9, p. 19)			X		
f. Behavior; e.g., innate versus learned, social behaviors, communication, and reproductive behaviors? (*Standards*, Number 5, p. S-6)			X		
g. Health and diseases; e.g., vectors and parasitism? (*Science Framework Addendum*, p. 25; *Statement*, Number 13, p. 20)				X	
h. STIS issues; e.g., agriculture, food, pests, pest control, and aquaculture? (*Standards*, Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 19)				X	
3. Chordates (nonhuman) To what extent does the textbook include discussions about: a. Chordate structures and their functions; e.g., comparative anatomy and physiology and classical chordate characteristics? (*Science Framework Addendum*, pp. 28, 30; *Standards*, Number 7, p. S-7, and Number 9, p. S-8; *Statement*, Number 9, p. 19)				X	
b. Evolutionary relationships and fossil histories? (*Science Framework Addendum*, pp. 15, 18; *Statement*, p. 16, and Number 9, p. 19)				X	
c. Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, p. 30)				X	
d. Growth, development, and embryology? (*Science Framework Addendum*, p. 31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)		X			
e. Reproduction? (*Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18)			X		
f. Behavior; e.g., innate versus learned, social behaviors, or communications? (*Standards*, Number 5, p. S-6; *Statement*, Number 9, p. 19)		X			
g. STIS issues; e.g., wildlife management, live animals used in research, veterinary medicine, and endangered species? (*Science Framework Addendum*, p. 13; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 20)				X	

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M. Animals—Continued					
4. Vertebrates (Human)					
To what extent does the textbook include discussions about:					
a. Structure, function, and maintenance of major body systems:					
(1) Nervous system and sense organs?		X			
(2) Circulatory system?		X			
(3) Digestive system?		X			
(4) Respiratory system?		X			
(5) Reproductive system?		X			

(6) Musculoskeletal system?		X			
(7) Excretory system?		X			
(8) Integumentary system?			X		
(9) The endocrine system? (*Science Framework Addendum*, p. 33; *Standards*, Number 7, p. S-7; *Statement*, Number 9, p. 19, and Number 12, p. 20)		X			
b. Evolutionary relationships and fossil histories? (*Science Framework Addendum*, p. 35; *Statement*, p. 16, and Number 9, p. 19)		X			
c. Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, pp. 32, 33, 35, 37)				X	
d. Growth, development, and embryology? (*Science Framework Addendum*, p. 34; *Standards*, Number 7 and Number 8, p. S-7; *Statement*, Number 12, p. 20)		X			
e. Behavior; e.g., innate versus learned, social behaviors, and communication? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 5 and Number 6, p. S-6; *Statement*, Number 12, p. 20)			X		
f. Health, diseases, and immunity; e.g., genetic, communicable, degenerative, cancer, diagnostic instruments, and STDs? (*Science Framework Addendum*, p. 35; *Standards*, Number 17, p. S-12)		X			
g. Interrelationships with other living things and the environment; e.g., domestication of plants and animals or habitat destruction? (*Standards*, Number 4, p. S-5; *Statement*, Number 11, p. 19)			X		
h. STIS issues; e.g., substance abuse? (*Science Framework Addendum*, p. 35)			X		
i. STIS issues; e.g., genetic counseling, population and demography, environmental issues, euthanasia, and life support systems? (*Science Framework Addendum*, pp. 12–13, 31, 37; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 13 and Number 16, p. 20)			X		
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II. BIOLOGY: PROCESS SKILLS (STUDENT'S EDITION)

DESCRIPTIONS OF PROCESSES*

OBSERVING

- Seeing
- Hearing
- Feeling
- Tasting
- Smelling

The main route to knowledge is through observing, using all the senses. This process is a distinct one by which people come to know about the characteristics of objects and their interactions.

COMMUNICATING

- Silent
- Oral
- Written
- Pictorial

Objects are named and events are described by people so that they can tell others about them. Communicating is a fundamental human process that enables one to learn more about a greater range of information than could be learned without this process.

COMPARING

- Sensory comparisons
- Relative positive comparisons
- Linear comparisons
- Weight comparisons
- Capacity comparisons
- Quantity comparisons

Comparing is a distinct process by which people systematically examine objects and events in terms of similarities and differences. By comparing the known to something unknown, one gains knowledge about the unknown. All measurements are forms of comparing.

ORGANIZING

- Data gathering
- Sequencing
- Grouping
- Classifying

Knowledge of principles and laws is gained only through the systematic compiling, classifying, and ordering of observed and compared data. Bodies of knowledge grow from long-term organizing processes.

RELATING

- Using space-time relationships
- Formulating experimental hypotheses
- Controlling and manipulating variables
- Experimenting

Relating is a process by which concrete and abstract ideas are woven together to test or explain phenomena. Hypothetical-deductive reasoning, coordinate graphing, the managing of variables, and the comparison of effects of one variable on another contribute to the attainment of the major concepts of science.

INFERRING

- Synthesizing, analyzing
- Generalizing
- Recognizing and predicting patterns; stating laws
- Formulating explanatory models and theorizing

The process of realizing ideas that are *not* directly observable is the process of inferring. The process leads to predictive explanations for simple and complex phenomena.

APPLYING

- Using knowledge to solve problems
- Inventing (technology)

Use of knowledge is the applying of knowledge. Inventing, creating, problem solving, and determining probabilities are ways of using information that lead to gaining further information.

Science Framework Addendum, pp. 4–5.

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REVIEW OF PROCESS SKILLS[1]

To what extent are the following process skills taught throughout the textbook:	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
1. Observing?	X				
2. Communicating?	X				
3. Comparing?		X			
4. Organizing?			X		
5. Relating?			X		
6. Inferring?				X	
7. Applying?				X	

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[1] *Science Framework Addendum*, p. 5.

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III. BIOLOGY: TEACHER'S EDITION

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the textbook include: 1. Alternative strategies for organizing the course? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2 and Number 4)		X		
2. A range of suggested instructional activities? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 3)			X	
3. Material that engages students in using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)			X	
4. Varied activities to meet instructional needs of students with different learning styles and interests? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 1)		X		

5. Consideration of the instructional needs of limited-English-proficient students? (*Science Framework Addendum*, p. 103, "General Criteria")				X
6. Identification of process skills related to specific activities? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6 and Number 7)		X		
7. Instructional activities that integrate knowledge and skills learned in other disciplines; e.g., mathematics or history? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		
8. Suggestions for structuring group instruction; e.g., cooperative learning? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2)				X
9. A listing of additional resources for extended and in-depth supplemental activities? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 3)		X		
10. A variety of assessment techniques; e.g., number and types of questions such as essay, definitions, and discussion? (*Science Framework Addendum*, p. 104, "Assessment and Evaluation," Number 1 and Number 2)				X

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IV. BIOLOGY: STUDENT'S LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. To what extent does the student's laboratory manual include:				
1. Experiences that reinforce the major concepts covered in the student's edition? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)	X			
2. Directions for laboratory setup, procedures, and data reporting related to the laboratory experiences? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8)	X			
3. Information that emphasizes safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9)		X		
4. Assignments that integrate knowledge and skills learned in other disciplines; e.g., reading and writing? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		

5. Assignments that guide students toward using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
6. Information that promotes sensitivity to the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)				X
B. To what extent are the following process skills taught throughout the laboratory manual:*				
1. Observing?	X			
2. Communicating?	X			
3. Comparing?	X			
4. Organizing?		X		
5. Relating?			X	
6. Inferring?		X		
7. Applying?			X	

**Science Framework Addendum*, p. 5 and p. 104, "Content and Process," Number 7.

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To what extent does the teacher's edition of the laboratory manual include:				
1. Information that encourages the shared responsibility for safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9; "Teachers' Materials," Number 9)			X	
2. Opportunities to demonstrate the interrelatedness of scientific information and process skills? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)			X	
3. Material which guides students to use higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)			X	
4. Opportunities to integrate knowledge and skills from other disciplines; e.g., writing of laboratory reports? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		

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5. Instructional alternatives as appropriate and necessary? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 4)				X
6. Resource lists for acquiring: a. Equipment?	X			
b. Chemicals?	X			
c. Supplies?	X			
d. Preserved and living specimens? (*Science Framework Addendum*, p. 104, "Teachers' Materials," Number 2)	X			
7. Necessary solutions and recipes? (*Science Framework Addendum*, pp. 104–105, "Teachers' Materials," Number 2)	X			
8. Information on the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)				X
9. List of supplemental materials and resources? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 2f)		X		
10. Information about outdoor biology fieldwork? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 7)			X	

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. **What is biology?** To what extent does the textbook include discussions about: 1. The distinguishing characteristics of life; e.g., reproduction and growth? (*Science Framework Addendum,* p. 14)		X			
2. Scientific reasoning; e.g., induction, deduction, observation, fact, hypothesis, theory, and inference? (*Science Framework Addendum,* pp. 8, 12; *Standards,*[*] p. S-1; *Statement,*[†] p. 9)		X			
3. Research methods and tools of biologists; e.g., microscopes, centrifuge, and metric measurement? (*Science Framework Addendum,* pp. 23, 26, 27)		X			
4. Science, Technology, Individuals, and Society (STIS) issues; e.g., health, ethical concerns, careers, and economic impact? (*Science Framework Addendum,* p. 13; *Statement,* Number 13 and Number 16, p. 20)	X				

___ Factual inaccuracies, if any, in the preceding section[‡]					
B. Ecology To what extent does the textbook include discussions about: 1. Diversity and stability in ecosystems? (*Science Framework Addendum*, pp. 41–42)		X			
2. Biotic and abiotic interrelationships; e.g., chains, cycles (such as carbon, nitrogen, and water), and symbiotic relationships? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11; *Statement*, Number 4, p. 18)		X			
3. Levels of ecological organization; e.g., communities, biomes, and populations? (*Science Framework Addendum*, pp. 39, 42; *Standards*, Number 4, p. S-5, and Number 16, p. S-11; *Statement*, Number 11, p. 19)		X			
4. The energy flow through the ecosystem; e.g., trophic levels and energy pyramids? (*Science Framework Addendum*, p. 40; *Statement*, Number 4, p. 18, and Number 11, p. 19)			X		
5. The impact of society on the natural environment; e.g., pollution, endangered species, resource depletion, and recycling? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11; *Statement*, Number 4, p. 18, and Number 11, p. 20)		X			
___ Factual inaccuracies, if any, in the preceding section					
C. Heredity To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Mendel, Morgan, Sutton, Watson, and Crick? (*Science Framework Addendum*, p. 8; *Standards*, Number 12, p. S-9, and Number 14, p. S-10; *Statement*, p. 12)	X				

NOTE: The secondary biology textbook review instrument is correlated with the following resource documents:

- The *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve* is cited as *Science Framework Addendum*.
- [*]*Model Curriculum Standards: Grades Nine Through Twelve* is cited as *Standards*.
- [†]The *Statement on Preparation in Natural Science Expected of Entering Freshmen* is cited as *Statement*.

The first two documents are published by the California State Department of Education. The last one listed was issued by the Academic Senates of the California Community Colleges, the California State University, and the University of California in cooperation with the California Round Table on Educational Opportunity. Each publication is available from the California State Department of Education (see pages 403 and 404 for ordering information).

[‡]See "Factual Inaccuracies" on page xii.

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I. BIOLOGY: CONTENT (STUDENT'S EDITION)—Continued

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C. Heredity—Continued					
2. Scientific tools to model heredity; e.g., probability, statistics, and pedigrees? (*Science Framework Addendum*, p. 20; *Standards*, Number 14, p. S-10)	X				
3. Cell cycle, meiosis, and mitosis? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 5, p. 18)		X			
4. Chromosomes, genes, DNA, and RNA? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)	X				
5. Biochemical aspects of heredity; e.g., transcription, translation, and protein synthesis? (*Science Framework Addendum*, p. 19; *Statement*, Number 7, p. 18)		X			

6. Gene and chromosome mutations; e.g., inversions, insertions, and nonsense codons? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)			X		
7. Human genetic variability; e.g., color blindness, baldness, and blood groups? (*Science Framework Addendum*, p. 17; *Standards*, Number 14, p. S-10; *Statement*, Number 7, p. 18)			X		
8. The influence of heredity on health and disease; e.g., sickle-cell anemia, hemophilia, and Down's syndrome? (*Standards*, Number 12, p. S-9; *Statement*, Number 13, p. 20)		X			
9. STIS issues; e.g., selective breeding and techniques and ethics of genetic engineering? (*Science Framework Addendum*, pp. 19–20; *Statement*, Number 5, p. 18, and Number 13, p. 20)			X		
— Factual inaccuracies, if any, in the preceding section					
D. Evolution To what extent does the textbook include discussions about:					
1. The genetic basis of evolution; e.g., genes as the source of variation? (*Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)			X		
2. A historical perspective; e.g., works of Lamarck, Wallace, and Darwin? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1, and Number 15, p. S-11; *Statement*, p. 12, and Number 6, p. 18)			X		
3. Scientific evidence; e.g., paleontology, genetics, biochemistry, and comparative anatomy? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 6, p. 18)			X		
4. Fossil evidence for evolution; e.g., skeletons, pollen, dating methods, and sequence of fossil forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)			X		
5. Evolutionary processes and their effects; e.g., selection, drift, adaptation, speciation, and extinction? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11)			X		

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D. Evolution—Continued					
6. Scientific theories about the origin of life; e.g., inorganic to organic? (*Science Framework Addendum*, p. 24; *Statement*, Number 6, p. 18)			X		
7. The history of life on earth; e.g., evolution from unicellular to multicellular and more specialized forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)	X				
8. Human evolution; e.g., paleoanthropology and the work on "Lucy"? (*Science Framework Addendum*, p. 35; *Statement*, Number 6, p. 18)		X			
— Factual inaccuracies, if any, in the preceding section					

E. Classification To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Aristotle and Linnaeus? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		
2. Evolutionary relationships as the basis of classification? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 8, p. 19)				X	
3. Principles of classification; e.g., hierarchy and binomial nomenclature? (*Standards*, Number 3, p. S-5; *Statement*, Number 8, p. 19)		X			
4. Comparative anatomy, genetic structure (phenotypes), and biochemistry as data sets for classification? (*Science Framework Addendum*, p. 20; *Statement*, Number 8, p. 19)	X				
___ Factual inaccuracies, if any, in the preceding section					
F. Chemistry To what extent does the textbook include discussions about: 1. Atoms, molecules, chemical bonds, reactions, and the periodic table? (*Science Framework Addendum*, p. 24; *Statement*, Number 2, p. 17)		X			
2. The structure and function of molecules in living things; e.g., proteins, nucleic acids, lipids, and polysaccarides? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 2, p. 17)		X			
3. Energy processes; e.g., laws of thermodynamics, diffusion, osmosis, and enzyme kinetics? (*Science Framework Addendum*, p. 19)	X				
___ Factual inaccuracies, if any, in the preceding section					
G. Cells To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Hook, Schleiden, Schwann, and Virchow? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		

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G. Cells—Continued					
2. The structure and function of cells and cell components, including the similarities and differences between plant and animal cells? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 1, p. 17)		X			
3. Cellular homeostasis? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)				X	
4. Cellular respiration? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)		X			
5. Photosynthesis? (*Science Framework Addendum*, p. 24; *Standards*, Number 11, p. S-9; *Statement*, Number 14, p. 18)	X				

6. Levels of organization, cells to systems? (*Standards*, Number 2, p. S-4; *Statement*, Number 3, p. 18)			X		
___ Factual inaccuracies, if any, in the preceding section					
H. Viruses To what extent does the textbook include discussions about: 1. The taxonomy of viruses; e.g., rhinoviruses, herpes simplex, and retroviruses? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)				X	
2. A historical perspective; e.g., tobacco mosaic virus, polio, Jenner, or Pasteur? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
3. The viral structures and their functions? (*Science Framework Addendum*, p. 27; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)				X	
4. Reproduction; e.g., invasion? (*Science Framework Addendum*, p. 27; *Statement*, Number 5, p. 18)			X		
5. STIS issues: nature of viral diseases and their social and economic impact; e.g., AIDS, influenza, and German measles? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					
I. Monera To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of monera? (*Science Framework Addendum*, pp. 15, 18; *Statement*, Number 10, p. 19)			X		
2. A historical perspective; e.g., Pasteur or Koch? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		
3. The distinguishing structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)		X			

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I. Monera—Continued					
4. Reproduction? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		
5. Diseases caused by monera; e.g., strep throat, urinary tract infections, and STDs? (*Science Framework Addendum*, p. 27)			X		
6. Interrelationships with other living things and the environment; e.g., nitrogen fixation and decomposition? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)			X		
7. STIS issues; e.g., food production, waste disposal, pollution, and genetic engineering? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)		X			
___ Factual inaccuracies, if any, in the preceding section					

J. Protists To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of protists? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		
2. Protists' structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)		X			
3. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)		X			
4. Diseases caused by protists; e.g., gingivitis, dysentery, and malaria? (*Science Framework Addendum*, p. 27; *Statement*, Number 10, p. 19)			X		
5. Interrelationships with other living things and the environment; e.g., symbiosis? (*Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)			X		
6. STIS issues; e.g., food sanitation, industrial products, waste disposal, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 10, p. 19)				X	
— Factual inaccuracies, if any, in the preceding section					
K. Fungi To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of fungi? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)			X		
2. A historical perspective; e.g., Fleming? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
3. The fungal structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		
4. Growth and development? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		

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K. Fungi—Continued					
5. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		
6. Diseases caused by fungi; e.g., ringworm, yeast infection, athlete's foot, smuts, and rusts? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)			X		
7. Interrelationships with other living things and the environment; e.g., decomposition, symbiosis (lichen), and mycorrhiza? (*Standards*, Number 10, p. S-8; *Statement*, Number 10, p. 19)			X		
8. STIS issues; e.g., food (toxic mushrooms), beverages, antibiotics, and fungicides? (*Science Framework Addendum*, p. 26; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		

___ Factual inaccuracies, if any, in the preceding section					
L. Plants To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of plants? (*Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)		X			
2. Plant structures and their functions; e.g., photosynthesis, food storage, and transport? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8, and Number 11, p. S-9; *Statement*, Number 10, p. 19)		X			
3. Adaptations for land existence? (*Science Framework Addendum*, pp. 18, 22, 24; *Statement*, p. 16, Number 10, p. 19)			X		
4. Growth and development, including the role of hormones? (*Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)			X		
5. Propagation and reproduction, including role of pollinators? (*Science Framework Addendum*, p. 25; *Statement*, Number 5, p. 18)		X			
6. Response to stimuli? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8)			X		
7. Health and disease states of plants; e.g., nutrient deficiencies and parasites? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)				X	
8. STIS issues; e.g., horticulture and environmental concerns, timber harvest, defolients, and endangered species? (*Science Framework Addendum*, p. 25; *Standards*, Number 10, p. S-8, Number 16, p. S-11, and Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					
M. Animals To what extent does the textbook include discussions about: 1. The taxonomic diversity of animals? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)	X				

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M. Animals—Continued					
2. Invertebrates To what extent does the textbook include discussions about:					
a. Invertebrate structures and their functions; e.g., systems, symmetry? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)	X				
b. Evolutionary relationships and fossil histories? (*Standards*, Number 15, p. S-11; *Statement*, p. 16, and Number 9, p. 19)			X		
c. Adaptations; e.g., for feeding and locomotion? (*Standards*, Number 15, p. S-11)	X				
d. Growth, development, and embryology? (*Science Framework Addendum*, pp. 30–31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)	X				

e. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 30; *Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18, and Number 9, p. 19)	X				
f. Behavior; e.g., innate versus learned, social behaviors, communication, and reproductive behaviors? (*Standards*, Number 5, p. S-6)			X		
g. Health and diseases; e.g., vectors and parasitism? (*Science Framework Addendum*, p. 25; *Statement*, Number 13, p. 20)			X		
h. STIS issues; e.g., agriculture, food, pests, pest control, and aquaculture? (*Standards*, Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 19)			X		
3. Chordates (nonhuman) To what extent does the textbook include discussions about: a. Chordate structures and their functions; e.g., comparative anatomy and physiology and classical chordate characteristics? (*Science Framework Addendum*, pp. 28, 30; *Standards*, Number 7, p. S-7, and Number 9, p. S-8; *Statement*, Number 9, p. 19)	X				
b. Evolutionary relationships and fossil histories? (*Science Framework Addendum*, pp. 15, 18; *Statement*, p. 16, and Number 9, p. 19)	X				
c. Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, p. 30)	X				
d. Growth, development, and embryology? (*Science Framework Addendum*, p. 31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)			X		
e. Reproduction? (*Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18)			X		
f. Behavior; e.g., innate versus learned, social behaviors, or communications? (*Standards*, Number 5, p. S-6; *Statement*, Number 9, p. 19)			X		
g. STIS issues; e.g., wildlife management, live animals used in research, veterinary medicine, and endangered species? (*Science Framework Addendum*, p. 13; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 20)			X		

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M. Animals—Continued					
4. Vertebrates (Human)					
To what extent does the textbook include discussions about:					
a. Structure, function, and maintenance of major body systems:					
(1) Nervous system and sense organs?		X			
(2) Circulatory system?		X			
(3) Digestive system?		X			
(4) Respiratory system?		X			
(5) Reproductive system?		X			

	(6) Musculoskeletal system?		X			
	(7) Excretory system?			X		
	(8) Integumentary system?			X		
	(9) The endocrine system? (*Science Framework Addendum*, p. 33; *Standards*, Number 7, p. S-7; *Statement*, Number 9, p. 19, and Number 12, p. 20)		X			
b.	Evolutionary relationships and fossil histories? (*Science Framework Addendum*, p. 35; *Statement*, p. 16, and Number 9, p. 19)		X			
c.	Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, pp. 32, 33, 35, 37)		X			
d.	Growth, development, and embryology? (*Science Framework Addendum*, p. 34; *Standards*, Number 7 and Number 8, p. S-7; *Statement*, Number 12, p. 20)		X			
e.	Behavior; e.g., innate versus learned, social behaviors, and communication? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 5 and Number 6, p. S-6; *Statement*, Number 12, p. 20)				X	
f.	Health, diseases, and immunity; e.g., genetic, communicable, degenerative, cancer, diagnostic instruments, and STDs? (*Science Framework Addendum*, p. 35; *Standards*, Number 17, p. S-12)			X		
g.	Interrelationships with other living things and the environment; e.g., domestication of plants and animals or habitat destruction? (*Standards*, Number 4, p. S-5; *Statement*, Number 11, p. 19)		X			
h.	STIS issues; e.g., substance abuse? (*Science Framework Addendum*, p. 35)		X			
i.	STIS issues; e.g., genetic counseling, population and demography, environmental issues, euthanasia, and life support systems? (*Science Framework Addendum*, pp. 12–13, 31, 37; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 13 and Number 16, p. 20)			X		
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II. BIOLOGY: PROCESS SKILLS (STUDENT'S EDITION)

DESCRIPTIONS OF PROCESSES*

OBSERVING

- Seeing
- Hearing
- Feeling
- Tasting
- Smelling

The main route to knowledge is through observing, using all the senses. This process is a distinct one by which people come to know about the characteristics of objects and their interactions.

COMMUNICATING

- Silent
- Oral
- Written
- Pictorial

Objects are named and events are described by people so that they can tell others about them. Communicating is a fundamental human process that enables one to learn more about a greater range of information than could be learned without this process.

COMPARING

- Sensory comparisons
- Relative positive comparisons
- Linear comparisons
- Weight comparisons
- Capacity comparisons
- Quantity comparisons

Comparing is a distinct process by which people systematically examine objects and events in terms of similarities and differences. By comparing the known to something unknown, one gains knowledge about the unknown. All measurements are forms of comparing.

ORGANIZING

- Data gathering
- Sequencing
- Grouping
- Classifying

Knowledge of principles and laws is gained only through the systematic compiling, classifying, and ordering of observed and compared data. Bodies of knowledge grow from long-term organizing processes.

RELATING

- Using space-time relationships
- Formulating experimental hypotheses
- Controlling and manipulating variables
- Experimenting

Relating is a process by which concrete and abstract ideas are woven together to test or explain phenomena. Hypothetical-deductive reasoning, coordinate graphing, the managing of variables, and the comparison of effects of one variable on another contribute to the attainment of the major concepts of science.

INFERRING

- Synthesizing, analyzing
- Generalizing
- Recognizing and predicting patterns; stating laws
- Formulating explanatory models and theorizing

The process of realizing ideas that are *not* directly observable is the process of inferring. The process leads to predictive explanations for simple and complex phenomena.

APPLYING

- Using knowledge to solve problems
- Inventing (technology)

Use of knowledge is the applying of knowledge. Inventing, creating, problem solving, and determining probabilities are ways of using information that lead to gaining further information.

**Science Framework Addendum*, pp. 4–5.

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REVIEW OF PROCESS SKILLS[†]

To what extent are the following process skills taught throughout the textbook:	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
1. Observing?	X				
2. Communicating?	X				
3. Comparing?	X				
4. Organizing?		X			
5. Relating?			X		
6. Inferring?			X		
7. Applying?			X		

[†] *Science Framework Addendum*, p. 5.

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III. BIOLOGY: TEACHER'S EDITION

DEFINITION OF TERMS

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the textbook include:				
1. Alternative strategies for organizing the course? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2 and Number 4)	X			
2. A range of suggested instructional activities? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 3)	X			
3. Material that engages students in using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
4. Varied activities to meet instructional needs of students with different learning styles and interests? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 1)	X			

5. Consideration of the instructional needs of limited-English-proficient students? (*Science Framework Addendum*, p. 103, "General Criteria")				X
6. Identification of process skills related to specific activities? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6 and Number 7)				X
7. Instructional activities that integrate knowledge and skills learned in other disciplines; e.g., mathematics or history? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		
8. Suggestions for structuring group instruction; e.g., cooperative learning? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2)			X	
9. A listing of additional resources for extended and in-depth supplemental activities? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 3)		X		
10. A variety of assessment techniques; e.g., number and types of questions such as essay, definitions, and discussion? (*Science Framework Addendum*, p. 104, "Assessment and Evaluation," Number 1 and Number 2)				X

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IV. BIOLOGY: STUDENT'S LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. To what extent does the student's laboratory manual include:				
1. Experiences that reinforce the major concepts covered in the student's edition? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)	X			
2. Directions for laboratory setup, procedures, and data reporting related to the laboratory experiences? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8)	X			
3. Information that emphasizes safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9)	X			
4. Assignments that integrate knowledge and skills learned in other disciplines; e.g., reading and writing? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)	X			

5. Assignments that guide students toward using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)	X			
6. Information that promotes sensitivity to the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)			X	
B. To what extent are the following process skills taught throughout the laboratory manual:* 1. Observing?		X		
2. Communicating?		X		
3. Comparing?		X		
4. Organizing?		X		
5. Relating?		X		
6. Inferring?		X		
7. Applying?			X	

**Science Framework Addendum*, p. 5 and p. 104, "Content and Process," Number 7.

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V. BIOLOGY: TEACHER'S EDITION OF THE LABORATORY MANUAL

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To what extent does the teacher's edition of the laboratory manual include:				
1. Information that encourages the shared responsibility for safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9; "Teachers' Materials," Number 9)		X		
2. Opportunities to demonstrate the interrelatedness of scientific information and process skills? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)		X		
3. Material which guides students to use higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
4. Opportunities to integrate knowledge and skills from other disciplines; e.g., writing of laboratory reports? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)	X			

5. Instructional alternatives as appropriate and necessary? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 4)			X	
6. Resource lists for acquiring: a. Equipment?	X			
b. Chemicals?	X			
c. Supplies?	X			
d. Preserved and living specimens? (*Science Framework Addendum*, p. 104, "Teachers' Materials," Number 2)	X			
7. Necessary solutions and recipes? (*Science Framework Addendum*, pp. 104–105, "Teachers' Materials," Number 2)	X			
8. Information on the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)		X		
9. List of supplemental materials and resources? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 2f)		X		
10. Information about outdoor biology fieldwork? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 7)		X		

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I. BIOLOGY: CONTENT (STUDENT'S EDITION)

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. **What is biology?** To what extent does the textbook include discussions about: 1. The distinguishing characteristics of life; e.g., reproduction and growth? (*Science Framework Addendum*, p. 14)		X			
2. Scientific reasoning; e.g., induction, deduction, observation, fact, hypothesis, theory, and inference? (*Science Framework Addendum*, pp. 8, 12; *Standards*,[*] p. S-1; *Statement*,[†] p. 9)		X			
3. Research methods and tools of biologists; e.g., microscopes, centrifuge, and metric measurement? (*Science Framework Addendum*, pp. 23, 26, 27)		X			
4. Science, Technology, Individuals, and Society (STIS) issues; e.g., health, ethical concerns, careers, and economic impact? (*Science Framework Addendum*, p. 13; *Statement*, Number 13 and Number 16, p. 20)		X			

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___ Factual inaccuracies, if any, in the preceding section[‡]					
B. Ecology To what extent does the textbook include discussions about: 1. Diversity and stability in ecosystems? (*Science Framework Addendum*, pp. 41–42)		X			
2. Biotic and abiotic interrelationships; e.g., chains, cycles (such as carbon, nitrogen, and water), and symbiotic relationships? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11; *Statement*, Number 4, p. 18)	X				
3. Levels of ecological organization; e.g., communities, biomes, and populations? (*Science Framework Addendum*, pp. 39, 42; *Standards*, Number 4, p. S-5, and Number 16, p. S-11; *Statement*, Number 11, p. 19)	X				
4. The energy flow through the ecosystem; e.g., trophic levels and energy pyramids? (*Science Framework Addendum*, p. 40; *Statement*, Number 4, p. 18, and Number 11, p. 19)		X			
5. The impact of society on the natural environment; e.g., pollution, endangered species, resource depletion, and recycling? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11; *Statement*, Number 4, p. 18, and Number 11, p. 20)		X			
___ Factual inaccuracies, if any, in the preceding section					
C. Heredity To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Mendel, Morgan, Sutton, Watson, and Crick? (*Science Framework Addendum*, p. 8; *Standards*, Number 12, p. S-9, and Number 14, p. S-10; *Statement*, p. 12)	X				

NOTE: The secondary biology textbook review instrument is correlated with the following resource documents:

- The *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve* is cited as *Science Framework Addendum*.
- [*]*Model Curriculum Standards: Grades Nine Through Twelve* is cited as *Standards*.
- [†]The *Statement on Preparation in Natural Science Expected of Entering Freshmen* is cited as *Statement*.

The first two documents are published by the California State Department of Education. The last one listed was issued by the Academic Senates of the California Community Colleges, the California State University, and the University of California in cooperation with the California Round Table on Educational Opportunity. Each publication is available from the California State Department of Education (see pages 403 and 404 for ordering information).

[‡]See "Factual Inaccuracies" on page xii.

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
C. Heredity—Continued					
2. Scientific tools to model heredity; e.g., probability, statistics, and pedigrees? (*Science Framework Addendum*, p. 20; *Standards*, Number 14, p. S-10)	X				
3. Cell cycle, meiosis, and mitosis? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 5, p. 18)	X				
4. Chromosomes, genes, DNA, and RNA? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)	X				
5. Biochemical aspects of heredity; e.g., transcription, translation, and protein synthesis? (*Science Framework Addendum*, p. 19; *Statement*, Number 7, p. 18)		X			

6. Gene and chromosome mutations; e.g., inversions, insertions, and nonsense codons? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)		X			
7. Human genetic variability; e.g., color blindness, baldness, and blood groups? (*Science Framework Addendum*, p. 17; *Standards*, Number 14, p. S-10; *Statement*, Number 7, p. 18)			X		
8. The influence of heredity on health and disease; e.g., sickle-cell anemia, hemophilia, and Down's syndrome? (*Standards*, Number 12, p. S-9; *Statement*, Number 13, p. 20)		X			
9. STIS issues; e.g., selective breeding and techniques and ethics of genetic engineering? (*Science Framework Addendum*, pp. 19–20; *Statement*, Number 5, p. 18, and Number 13, p. 20)		X			
___ Factual inaccuracies, if any, in the preceding section					
D. Evolution To what extent does the textbook include discussions about: 1. The genetic basis of evolution; e.g., genes as the source of variation? (*Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)		X			
2. A historical perspective; e.g., works of Lamarck, Wallace, and Darwin? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1, and Number 15, p. S-11; *Statement*, p. 12, and Number 6, p. 18)			X		
3. Scientific evidence; e.g., paleontology, genetics, biochemistry, and comparative anatomy? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 6, p. 18)		X			
4. Fossil evidence for evolution; e.g., skeletons, pollen, dating methods, and sequence of fossil forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)	X				
5. Evolutionary processes and their effects; e.g., selection, drift, adaptation, speciation, and extinction? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11)	X				

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
D. Evolution—Continued					
6. Scientific theories about the origin of life; e.g., inorganic to organic? (*Science Framework Addendum*, p. 24; *Statement*, Number 6, p. 18)			X		
7. The history of life on earth; e.g., evolution from unicellular to multicellular and more specialized forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)		X			
8. Human evolution; e.g., paleoanthropology and the work on "Lucy"? (*Science Framework Addendum*, p. 35; *Statement*, Number 6, p. 18)		X			
Factual inaccuracies, if any, in the preceding section					

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E. Classification To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Aristotle and Linnaeus? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		
2. Evolutionary relationships as the basis of classification? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 8, p. 19)	X				
3. Principles of classification; e.g., hierarchy and binomial nomenclature? (*Standards*, Number 3, p. S-5; *Statement*, Number 8, p. 19)		X			
4. Comparative anatomy, genetic structure (phenotypes), and biochemistry as data sets for classification? (*Science Framework Addendum*, p. 20; *Statement*, Number 8, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					
F. Chemistry To what extent does the textbook include discussions about: 1. Atoms, molecules, chemical bonds, reactions, and the periodic table? (*Science Framework Addendum*, p. 24; *Statement*, Number 2, p. 17)		X			
2. The structure and function of molecules in living things; e.g., proteins, nucleic acids, lipids, and polysaccarides? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 2, p. 17)	X				
3. Energy processes; e.g., laws of thermodynamics, diffusion, osmosis, and enzyme kinetics? (*Science Framework Addendum*, p. 19)		X			
___ Factual inaccuracies, if any, in the preceding section					
G. Cells To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Hook, Schleiden, Schwann, and Virchow? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		

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Content	High emphasis	Substantial emphasis	Moderate emphasis	Limited emphasis	Not covered
G. Cells—Continued					
2. The structure and function of cells and cell components, including the similarities and differences between plant and animal cells? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 1, p. 17)		X			
3. Cellular homeostasis? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)			X		
4. Cellular respiration? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)		X			
5. Photosynthesis? (*Science Framework Addendum*, p. 24; *Standards*, Number 11, p. S-9; *Statement*, Number 14, p. 18)	X				

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6. Levels of organization, cells to systems? (*Standards*, Number 2, p. S-4; *Statement*, Number 3, p. 18)			X		
___ Factual inaccuracies, if any, in the preceding section					
H. Viruses To what extent does the textbook include discussions about:					
1. The taxonomy of viruses; e.g., rhinoviruses, herpes simplex, and retroviruses? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)			X		
2. A historical perspective; e.g., tobacco mosaic virus, polio, Jenner, or Pasteur? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)		X			
3. The viral structures and their functions? (*Science Framework Addendum*, p. 27; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)			X		
4. Reproduction; e.g., invasion? (*Science Framework Addendum*, p. 27; *Statement*, Number 5, p. 18)			X		
5. STIS issues: nature of viral diseases and their social and economic impact; e.g., AIDS, influenza, and German measles? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)		X			
___ Factual inaccuracies, if any, in the preceding section					
I. Monera To what extent does the textbook include discussions about:					
1. The evolution, the phylogeny, and taxonomy of monera? (*Science Framework Addendum*, pp. 15, 18; *Statement*, Number 10, p. 19)		X			
2. A historical perspective; e.g., Pasteur or Koch? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		
3. The distinguishing structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		

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I. Monera—Continued					
4. Reproduction? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		
5. Diseases caused by monera; e.g., strep throat, urinary tract infections, and STDs? (*Science Framework Addendum*, p. 27)			X		
6. Interrelationships with other living things and the environment; e.g., nitrogen fixation and decomposition? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)			X		
7. STIS issues; e.g., food production, waste disposal, pollution, and genetic engineering? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					

J. Protists To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of protists? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		
2. Protists' structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)		X			
3. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)		X			
4. Diseases caused by protists; e.g., gingivitis, dysentery, and malaria? (*Science Framework Addendum*, p. 27; *Statement*, Number 10, p. 19)			X		
5. Interrelationships with other living things and the environment; e.g., symbiosis? (*Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)				X	
6. STIS issues; e.g., food sanitation, industrial products, waste disposal, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 10, p. 19)				X	
— Factual inaccuracies, if any, in the preceding section					
K. Fungi To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of fungi? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)			X		
2. A historical perspective; e.g., Fleming? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		
3. The fungal structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		
4. Growth and development? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
K. Fungi—Continued					
5. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)		X			
6. Diseases caused by fungi; e.g., ringworm, yeast infection, athlete's foot, smuts, and rusts? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)			X		
7. Interrelationships with other living things and the environment; e.g., decomposition, symbiosis (lichen), and mycorrhiza? (*Standards*, Number 10, p. S-8; *Statement*, Number 10, p. 19)			X		
8. STIS issues; e.g., food (toxic mushrooms), beverages, antibiotics, and fungicides? (*Science Framework Addendum*, p. 26; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		

___ Factual inaccuracies, if any, in the preceding section					
L. Plants To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of plants? (*Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)	X				
2. Plant structures and their functions; e.g., photosynthesis, food storage, and transport? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8, and Number 11, p. S-9; *Statement*, Number 10, p. 19)	X				
3. Adaptations for land existence? (*Science Framework Addendum*, pp. 18, 22, 24; *Statement*, p. 16, Number 10, p. 19)		X			
4. Growth and development, including the role of hormones? (*Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)		X			
5. Propagation and reproduction, including role of pollinators? (*Science Framework Addendum*, p. 25; *Statement*, Number 5, p. 18)		X			
6. Response to stimuli? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8)		X			
7. Health and disease states of plants; e.g., nutrient deficiencies and parasites? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)			X		
8. STIS issues; e.g., horticulture and environmental concerns, timber harvest, defolients, and endangered species? (*Science Framework Addendum*, p. 25; *Standards*, Number 10, p. S-8, Number 16, p. S-11, and Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					
M. Animals To what extent does the textbook include discussions about: 1. The taxonomic diversity of animals? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)	X				

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
M. Animals—Continued 2. Invertebrates To what extent does the textbook include discussions about: a. Invertebrate structures and their functions; e.g., systems, symmetry? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)	X				
b. Evolutionary relationships and fossil histories? (*Standards*, Number 15, p. S-11; *Statement*, p. 16, and Number 9, p. 19)				X	
c. Adaptations; e.g., for feeding and locomotion? (*Standards*, Number 15, p. S-11)	X				
d. Growth, development, and embryology? (*Science Framework Addendum*, pp. 30–31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)	X				

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e. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 30; *Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18, and Number 9, p. 19)	X				
f. Behavior; e.g., innate versus learned, social behaviors, communication, and reproductive behaviors? (*Standards*, Number 5, p. S-6)			X		
g. Health and diseases; e.g., vectors and parasitism? (*Science Framework Addendum*, p. 25; *Statement*, Number 13, p. 20)			X		
h. STIS issues; e.g., agriculture, food, pests, pest control, and aquaculture? (*Standards*, Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 19)			X		
3. Chordates (nonhuman) To what extent does the textbook include discussions about: a. Chordate structures and their functions; e.g., comparative anatomy and physiology and classical chordate characteristics? (*Science Framework Addendum*, pp. 28, 30; *Standards*, Number 7, p. S-7, and Number 9, p. S-8; *Statement*, Number 9, p. 19)	X				
b. Evolutionary relationships and fossil histories? (*Science Framework Addendum*, pp. 15, 18; *Statement*, p. 16, and Number 9, p. 19)	X				
c. Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, p. 30)	X				
d. Growth, development, and embryology? (*Science Framework Addendum*, p. 31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)	X				
e. Reproduction? (*Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18)	X				
f. Behavior; e.g., innate versus learned, social behaviors, or communications? (*Standards*, Number 5, p. S-6; *Statement*, Number 9, p. 19)		X			
g. STIS issues; e.g., wildlife management, live animals used in research, veterinary medicine, and endangered species? (*Science Framework Addendum*, p. 13; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 20)			X		

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I. BIOLOGY: CONTENT (STUDENT'S EDITION)—Continued

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
M. Animals—Continued 4. Vertebrates (Human) To what extent does the textbook include discussions about: a. Structure, function, and maintenance of major body systems: (1) Nervous system and sense organs?		X			
(2) Circulatory system?		X			
(3) Digestive system?		X			
(4) Respiratory system?		X			
(5) Reproductive system?		X			

(6) Musculoskeletal system?		X			
(7) Excretory system?		X			
(8) Integumentary system?			X		
(9) The endocrine system? (*Science Framework Addendum*, p. 33; *Standards*, Number 7, p. S-7; *Statement*, Number 9, p. 19, and Number 12, p. 20)		X			
b. Evolutionary relationships and fossil histories? (*Science Framework Addendum*, p. 35; *Statement*, p. 16, and Number 9, p. 19)		X			
c. Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, pp. 32, 33, 35, 37)		X			
d. Growth, development, and embryology? (*Science Framework Addendum*, p. 34; *Standards*, Number 7 and Number 8, p. S-7; *Statement*, Number 12, p. 20)		X			
e. Behavior; e.g., innate versus learned, social behaviors, and communication? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 5 and Number 6, p. S-6; *Statement*, Number 12, p. 20)			X		
f. Health, diseases, and immunity; e.g., genetic, communicable, degenerative, cancer, diagnostic instruments, and STDs? (*Science Framework Addendum*, p. 35; *Standards*, Number 17, p. S-12)	X				
g. Interrelationships with other living things and the environment; e.g., domestication of plants and animals or habitat destruction? (*Standards*, Number 4, p. S-5; *Statement*, Number 11, p. 19)		X			
h. STIS issues; e.g., substance abuse? (*Science Framework Addendum*, p. 35)		X			
i. STIS issues; e.g., genetic counseling, population and demography, environmental issues, euthanasia, and life support systems? (*Science Framework Addendum*, pp. 12–13, 31, 37; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 13 and Number 16, p. 20)		X			
___ Factual inaccuracies, if any, in the preceding section					

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II. BIOLOGY: PROCESS SKILLS (STUDENT'S EDITION)

DESCRIPTIONS OF PROCESSES*

OBSERVING

- Seeing
- Hearing
- Feeling
- Tasting
- Smelling

The main route to knowledge is through observing, using all the senses. This process is a distinct one by which people come to know about the characteristics of objects and their interactions.

COMMUNICATING

- Silent
- Oral
- Written
- Pictorial

Objects are named and events are described by people so that they can tell others about them. Communicating is a fundamental human process that enables one to learn more about a greater range of information than could be learned without this process.

COMPARING

- Sensory comparisons
- Relative positive comparisons
- Linear comparisons
- Weight comparisons
- Capacity comparisons
- Quantity comparisons

Comparing is a distinct process by which people systematically examine objects and events in terms of similarities and differences. By comparing the known to something unknown, one gains knowledge about the unknown. All measurements are forms of comparing.

ORGANIZING

- Data gathering
- Sequencing
- Grouping
- Classifying

Knowledge of principles and laws is gained only through the systematic compiling, classifying, and ordering of observed and compared data. Bodies of knowledge grow from long-term organizing processes.

RELATING

- Using space-time relationships
- Formulating experimental hypotheses
- Controlling and manipulating variables
- Experimenting

Relating is a process by which concrete and abstract ideas are woven together to test or explain phenomena. Hypothetical-deductive reasoning, coordinate graphing, the managing of variables, and the comparison of effects of one variable on another contribute to the attainment of the major concepts of science.

INFERRING

- Synthesizing, analyzing
- Generalizing
- Recognizing and predicting patterns; stating laws
- Formulating explanatory models and theorizing

The process of realizing ideas that are *not* directly observable is the process of inferring. The process leads to predictive explanations for simple and complex phenomena.

APPLYING

- Using knowledge to solve problems
- Inventing (technology)

Use of knowledge is the applying of knowledge. Inventing, creating, problem solving, and determining probabilities are ways of using information that lead to gaining further information.

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[*] *Science Framework Addendum*, pp. 4–5.

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REVIEW OF PROCESS SKILLS[†]

To what extent are the following process skills taught throughout the textbook:	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
1. Observing?	X				
2. Communicating?	X				
3. Comparing?	X				
4. Organizing?	X				
5. Relating?			X		
6. Inferring?			X		
7. Applying?			X		

[†] *Science Framework Addendum*, p. 5.

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III. BIOLOGY: TEACHER'S EDITION

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NOT COVERED means that the feature is *not* covered.

Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the textbook include:				
1. Alternative strategies for organizing the course? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2 and Number 4)	X			
2. A range of suggested instructional activities? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 3)	X			
3. Material that engages students in using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
4. Varied activities to meet instructional needs of students with different learning styles and interests? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 1)		X		

5. Consideration of the instructional needs of limited-English-proficient students? (*Science Framework Addendum*, p. 103, "General Criteria")				X
6. Identification of process skills related to specific activities? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6 and Number 7)		X		
7. Instructional activities that integrate knowledge and skills learned in other disciplines; e.g., mathematics or history? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		
8. Suggestions for structuring group instruction; e.g., cooperative learning? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2)		X		
9. A listing of additional resources for extended and in-depth supplemental activities? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 3)	X			
10. A variety of assessment techniques; e.g., number and types of questions such as essay, definitions, and discussion? (*Science Framework Addendum*, p. 104, "Assessment and Evaluation," Number 1 and Number 2)			X	

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IV. BIOLOGY: STUDENT'S LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. To what extent does the student's laboratory manual include:				
1. Experiences that reinforce the major concepts covered in the student's edition? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)	X			
2. Directions for laboratory setup, procedures, and data reporting related to the laboratory experiences? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8)	X			
3. Information that emphasizes safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9)	X			
4. Assignments that integrate knowledge and skills learned in other disciplines; e.g., reading and writing? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		

5. Assignments that guide students toward using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
6. Information that promotes sensitivity to the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)			X	
B. To what extent are the following process skills taught throughout the laboratory manual:*				
1. Observing?	X			
2. Communicating?	X			
3. Comparing?	X			
4. Organizing?		X		
5. Relating?		X		
6. Inferring?		X		
7. Applying?			X	

**Science Framework Addendum*, p. 5 and p. 104, "Content and Process," Number 7.

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V. BIOLOGY: TEACHER'S EDITION OF THE LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the laboratory manual include:				
1. Information that encourages the shared responsibility for safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9; "Teachers' Materials," Number 9)	X			
2. Opportunities to demonstrate the interrelatedness of scientific information and process skills? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)		X		
3. Material which guides students to use higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)	X			
4. Opportunities to integrate knowledge and skills from other disciplines; e.g., writing of laboratory reports? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)	X			

5. Instructional alternatives as appropriate and necessary? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 4)			X	
6. Resource lists for acquiring: a. Equipment?	X			
b. Chemicals?	X			
c. Supplies?	X			
d. Preserved and living specimens? (*Science Framework Addendum*, p. 104, "Teachers' Materials," Number 2)	X			
7. Necessary solutions and recipes? (*Science Framework Addendum*, pp. 104–105, "Teachers' Materials," Number 2)	X			
8. Information on the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)		X		
9. List of supplemental materials and resources? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 2f)		X		
10. Information about outdoor biology fieldwork? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 7)		X		

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I. BIOLOGY: CONTENT (STUDENT'S EDITION)

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. What is biology? To what extent does the textbook include discussions about:					
1. The distinguishing characteristics of life; e.g., reproduction and growth? (*Science Framework Addendum*, p. 14)			X		
2. Scientific reasoning; e.g., induction, deduction, observation, fact, hypothesis, theory, and inference? (*Science Framework Addendum*, pp. 8, 12; *Standards*,* p. S-1; *Statement*,† p. 9)	X				
3. Research methods and tools of biologists; e.g., microscopes, centrifuge, and metric measurement? (*Science Framework Addendum*, pp. 23, 26, 27)	X				
4. Science, Technology, Individuals, and Society (STIS) issues; e.g., health, ethical concerns, careers, and economic impact? (*Science Framework Addendum*, p. 13; *Statement*, Number 13 and Number 16, p. 20)			X		

___ Factual inaccuracies, if any, in the preceding section‡					
B. Ecology To what extent does the textbook include discussions about: 1. Diversity and stability in ecosystems? (*Science Framework Addendum*, pp. 41–42)		X			
2. Biotic and abiotic interrelationships; e.g., chains, cycles (such as carbon, nitrogen, and water), and symbiotic relationships? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11; *Statement*, Number 4, p. 18)		X			
3. Levels of ecological organization; e.g., communities, biomes, and populations? (*Science Framework Addendum*, pp. 39, 42; *Standards*, Number 4, p. S-5, and Number 16, p. S-11; *Statement*, Number 11, p. 19)		X			
4. The energy flow through the ecosystem; e.g., trophic levels and energy pyramids? (*Science Framework Addendum*, p. 40; *Statement*, Number 4, p. 18, and Number 11, p. 19)			X		
5. The impact of society on the natural environment; e.g., pollution, endangered species, resource depletion, and recycling? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11; *Statement*, Number 4, p. 18, and Number 11, p. 20)			X		
___ Factual inaccuracies, if any, in the preceding section					
C. Heredity To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Mendel, Morgan, Sutton, Watson, and Crick? (*Science Framework Addendum*, p. 8; *Standards*, Number 12, p. S-9, and Number 14, p. S-10; *Statement*, p. 12)	X				

NOTE: The secondary biology textbook review instrument is correlated with the following resource documents:

- The *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve* is cited as *Science Framework Addendum*.
- **Model Curriculum Standards: Grades Nine Through Twelve* is cited as *Standards*.
- †The *Statement on Preparation in Natural Science Expected of Entering Freshmen* is cited as *Statement*.

The first two documents are published by the California State Department of Education. The last one listed was issued by the Academic Senates of the California Community Colleges, the California State University, and the University of California in cooperation with the California Round Table on Educational Opportunity. Each publication is available from the California State Department of Education (see pages 403 and 404 for ordering information).

‡See "Factual Inaccuracies" on page xii.

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
C. Heredity—Continued					
2. Scientific tools to model heredity; e.g., probability, statistics, and pedigrees? (*Science Framework Addendum*, p. 20; *Standards*, Number 14, p. S-10)			X		
3. Cell cycle, meiosis, and mitosis? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 5, p. 18)		X			
4. Chromosomes, genes, DNA, and RNA? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)	X				
5. Biochemical aspects of heredity; e.g., transcription, translation, and protein synthesis? (*Science Framework Addendum*, p. 19; *Statement*, Number 7, p. 18)		X			

6. Gene and chromosome mutations; e.g., inversions, insertions, and nonsense codons? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)		X			
7. Human genetic variability; e.g., color blindness, baldness, and blood groups? (*Science Framework Addendum*, p. 17; *Standards*, Number 14, p. S-10; *Statement*, Number 7, p. 18)			X		
8. The influence of heredity on health and disease; e.g., sickle-cell anemia, hemophilia, and Down's syndrome? (*Standards*, Number 12, p. S-9; *Statement*, Number 13, p. 20)			X		
9. STIS issues; e.g., selective breeding and techniques and ethics of genetic engineering? (*Science Framework Addendum*, pp. 19–20; *Statement*, Number 5, p. 18, and Number 13, p. 20)		X			
__ Factual inaccuracies, if any, in the preceding section					
D. Evolution To what extent does the textbook include discussions about:					
1. The genetic basis of evolution; e.g., genes as the source of variation? (*Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)		X			
2. A historical perspective; e.g., works of Lamarck, Wallace, and Darwin? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1, and Number 15, p. S-11; *Statement*, p. 12, and Number 6, p. 18)			X		
3. Scientific evidence; e.g., paleontology, genetics, biochemistry, and comparative anatomy? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 6, p. 18)		X			
4. Fossil evidence for evolution; e.g., skeletons, pollen, dating methods, and sequence of fossil forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)			X		
5. Evolutionary processes and their effects; e.g., selection, drift, adaptation, speciation, and extinction? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11)		X			

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
D. Evolution—Continued					
6. Scientific theories about the origin of life; e.g., inorganic to organic? (*Science Framework Addendum*, p. 24; *Statement*, Number 6, p. 18)		X			
7. The history of life on earth; e.g., evolution from unicellular to multicellular and more specialized forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)	X				
8. Human evolution; e.g., paleoanthropology and the work on "Lucy"? (*Science Framework Addendum*, p. 35; *Statement*, Number 6, p. 18)		X			
___ Factual inaccuracies, if any, in the preceding section					

E. Classification To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Aristotle and Linnaeus? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		
2. Evolutionary relationships as the basis of classification? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 8, p. 19)	X				
3. Principles of classification; e.g., hierarchy and binomial nomenclature? (*Standards*, Number 3, p. S-5; *Statement*, Number 8, p. 19)		X			
4. Comparative anatomy, genetic structure (phenotypes), and biochemistry as data sets for classification? (*Science Framework Addendum*, p. 20; *Statement*, Number 8, p. 19)		X			
___ Factual inaccuracies, if any, in the preceding section					
F. Chemistry To what extent does the textbook include discussions about: 1. Atoms, molecules, chemical bonds, reactions, and the periodic table? (*Science Framework Addendum*, p. 24; *Statement*, Number 2, p. 17)		X			
2. The structure and function of molecules in living things; e.g., proteins, nucleic acids, lipids, and polysaccarides? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 2, p. 17)		X			
3. Energy processes; e.g., laws of thermodynamics, diffusion, osmosis, and enzyme kinetics? (*Science Framework Addendum*, p. 19)		X			
___ Factual inaccuracies, if any, in the preceding section					
G. Cells To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Hook, Schleiden, Schwann, and Virchow? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
G. Cells—Continued					
2. The structure and function of cells and cell components, including the similarities and differences between plant and animal cells? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 1, p. 17)		X			
3. Cellular homeostasis? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)		X			
4. Cellular respiration? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)		X			
5. Photosynthesis? (*Science Framework Addendum*, p. 24; *Standards*, Number 11, p. S-9; *Statement*, Number 14, p. 18)		X			

6. Levels of organization, cells to systems? (*Standards*, Number 2, p. S-4; *Statement*, Number 3, p. 18)		X			
___ Factual inaccuracies, if any, in the preceding section					
H. Viruses To what extent does the textbook include discussions about: 1. The taxonomy of viruses; e.g., rhinoviruses, herpes simplex, and retroviruses? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)				X	
2. A historical perspective; e.g., tobacco mosaic virus, polio, Jenner, or Pasteur? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
3. The viral structures and their functions? (*Science Framework Addendum*, p. 27; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)			X		
4. Reproduction; e.g., invasion? (*Science Framework Addendum*, p. 27; *Statement*, Number 5, p. 18)			X		
5. STIS issues: nature of viral diseases and their social and economic impact; e.g., AIDS, influenza, and German measles? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)				X	
___ Factual inaccuracies, if any, in the preceding section					
I. Monera To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of monera? (*Science Framework Addendum*, pp. 15, 18; *Statement*, Number 10, p. 19)			X		
2. A historical perspective; e.g., Pasteur or Koch? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
3. The distinguishing structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		

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I. BIOLOGY: CONTENT (STUDENT'S EDITION)—Continued

DEFINITION OF TERMS

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
I. Monera—Continued					
4. Reproduction? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)				X	
5. Diseases caused by monera; e.g., strep throat, urinary tract infections, and STDs? (*Science Framework Addendum*, p. 27)			X		
6. Interrelationships with other living things and the environment; e.g., nitrogen fixation and decomposition? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)			X		
7. STIS issues; e.g., food production, waste disposal, pollution, and genetic engineering? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)				X	
___ Factual inaccuracies, if any, in the preceding section					

J. Protists To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of protists? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)		X			
2. Protists' structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)		X			
3. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		
4. Diseases caused by protists; e.g., gingivitis, dysentery, and malaria? (*Science Framework Addendum*, p. 27; *Statement*, Number 10, p. 19)			X		
5. Interrelationships with other living things and the environment; e.g., symbiosis? (*Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)			X		
6. STIS issues; e.g., food sanitation, industrial products, waste disposal, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		
— Factual inaccuracies, if any, in the preceding section					
K. Fungi To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of fungi? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)			X		
2. A historical perspective; e.g., Fleming? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
3. The fungal structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		
4. Growth and development? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		

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K. Fungi—Continued					
5. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		
6. Diseases caused by fungi; e.g., ringworm, yeast infection, athlete's foot, smuts, and rusts? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)				X	
7. Interrelationships with other living things and the environment; e.g., decomposition, symbiosis (lichen), and mycorrhiza? (*Standards*, Number 10, p. S-8; *Statement*, Number 10, p. 19)			X		
8. STIS issues; e.g., food (toxic mushrooms), beverages, antibiotics, and fungicides? (*Science Framework Addendum*, p. 26; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)				X	

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___ Factual inaccuracies, if any, in the preceding section					
L. Plants To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of plants? (*Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)			X		
2. Plant structures and their functions; e.g., photosynthesis, food storage, and transport? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8, and Number 11, p. S-9; *Statement*, Number 10, p. 19)		X			
3. Adaptations for land existence? (*Science Framework Addendum*, pp. 18, 22, 24; *Statement*, p. 16, Number 10, p. 19)			X		
4. Growth and development, including the role of hormones? (*Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)		X			
5. Propagation and reproduction, including role of pollinators? (*Science Framework Addendum*, p. 25; *Statement*, Number 5, p. 18)		X			
6. Response to stimuli? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8)			X		
7. Health and disease states of plants; e.g., nutrient deficiencies and parasites? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)			X		
8. STIS issues; e.g., horticulture and environmental concerns, timber harvest, defolients, and endangered species? (*Science Framework Addendum*, p. 25; *Standards*, Number 10, p. S-8, Number 16, p. S-11, and Number 17, p. S-12)		X			
___ Factual inaccuracies, if any, in the preceding section					
M. Animals To what extent does the textbook include discussions about: 1. The taxonomic diversity of animals? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)	X				

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M. Animals—Continued					
2. Invertebrates To what extent does the textbook include discussions about:					
a. Invertebrate structures and their functions; e.g., systems, symmetry? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)	X				
b. Evolutionary relationships and fossil histories? (*Standards*, Number 15, p. S-11; *Statement*, p. 16, and Number 9, p. 19)	X				
c. Adaptations; e.g., for feeding and locomotion? (*Standards*, Number 15, p. S-11)	X				
d. Growth, development, and embryology? (*Science Framework Addendum*, pp. 30–31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)		X			

e. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 30; *Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18, and Number 9, p. 19)	X				
f. Behavior; e.g., innate versus learned, social behaviors, communication, and reproductive behaviors? (*Standards*, Number 5, p. S-6)			X		
g. Health and diseases; e.g., vectors and parasitism? (*Science Framework Addendum*, p. 25; *Statement*, Number 13, p. 20)			X		
h. STIS issues; e.g., agriculture, food, pests, pest control, and aquaculture? (*Standards*, Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 19)			X		
3. Chordates (nonhuman) To what extent does the textbook include discussions about: a. Chordate structures and their functions; e.g., comparative anatomy and physiology and classical chordate characteristics? (*Science Framework Addendum*, pp. 28, 30; *Standards*, Number 7, p. S-7, and Number 9, p. S-8; *Statement*, Number 9, p. 19)	X				
b. Evolutionary relationships and fossil histories? (*Science Framework Addendum*, pp. 15, 18; *Statement*, p. 16, and Number 9, p. 19)		X			
c. Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, p. 30)	X				
d. Growth, development, and embryology? (*Science Framework Addendum*, p. 31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)	X				
e. Reproduction? (*Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18)	X				
f. Behavior; e.g., innate versus learned, social behaviors, or communications? (*Standards*, Number 5, p. S-6; *Statement*, Number 9, p. 19)			X		
g. STIS issues; e.g., wildlife management, live animals used in research, veterinary medicine, and endangered species? (*Science Framework Addendum*, p. 13; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 20)			X		

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M. Animals—Continued					
4. Vertebrates (Human)					
To what extent does the textbook include discussions about:					
a. Structure, function, and maintenance of major body systems:					
(1) Nervous system and sense organs?		X			
(2) Circulatory system?		X			
(3) Digestive system?		X			
(4) Respiratory system?			X		
(5) Reproductive system?		X			

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(6) Musculoskeletal system?			X		
(7) Excretory system?			X		
(8) Integumentary system?			X		
(9) The endocrine system? (*Science Framework Addendum*, p. 33; *Standards*, Number 7, p. S-7; *Statement*, Number 9, p. 19, and Number 12, p. 20)		X			
b. Evolutionary relationships and fossil histories? (*Science Framework Addendum*, p. 35; *Statement*, p. 16, and Number 9, p. 19)			X		
c. Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, pp. 32, 33, 35, 37)			X		
d. Growth, development, and embryology? (*Science Framework Addendum*, p. 34; *Standards*, Number 7 and Number 8, p. S-7; *Statement*, Number 12, p. 20)			X		
e. Behavior; e.g., innate versus learned, social behaviors, and communication? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 5 and Number 6, p. S-6; *Statement*, Number 12, p. 20)				X	
f. Health, diseases, and immunity; e.g., genetic, communicable, degenerative, cancer, diagnostic instruments, and STDs? (*Science Framework Addendum*, p. 35; *Standards*, Number 17, p. S-12)		X			
g. Interrelationships with other living things and the environment; e.g., domestication of plants and animals or habitat destruction? (*Standards*, Number 4, p. S-5; *Statement*, Number 11, p. 19)		X			
h. STIS issues; e.g., substance abuse? (*Science Framework Addendum*, p. 35)			X		
i. STIS issues; e.g., genetic counseling, population and demography, environmental issues, euthanasia, and life support systems? (*Science Framework Addendum*, pp. 12–13, 31, 37; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 13 and Number 16, p. 20)			X		
____ Factual inaccuracies, if any, in the preceding section					

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II. BIOLOGY: PROCESS SKILLS (STUDENT'S EDITION)

DESCRIPTIONS OF PROCESSES*

OBSERVING

- Seeing
- Hearing
- Feeling
- Tasting
- Smelling

The main route to knowledge is through observing, using all the senses. This process is a distinct one by which people come to know about the characteristics of objects and their interactions.

COMMUNICATING

- Silent
- Oral
- Written
- Pictorial

Objects are named and events are described by people so that they can tell others about them. Communicating is a fundamental human process that enables one to learn more about a greater range of information than could be learned without this process.

COMPARING

- Sensory comparisons
- Relative positive comparisons
- Linear comparisons
- Weight comparisons
- Capacity comparisons
- Quantity comparisons

Comparing is a distinct process by which people systematically examine objects and events in terms of similarities and differences. By comparing the known to something unknown, one gains knowledge about the unknown. All measurements are forms of comparing.

ORGANIZING

- Data gathering
- Sequencing
- Grouping
- Classifying

Knowledge of principles and laws is gained only through the systematic compiling, classifying, and ordering of observed and compared data. Bodies of knowledge grow from long-term organizing processes.

RELATING

- Using space-time relationships
- Formulating experimental hypotheses
- Controlling and manipulating variables
- Experimenting

Relating is a process by which concrete and abstract ideas are woven together to test or explain phenomena. Hypothetical-deductive reasoning, coordinate graphing, the managing of variables, and the comparison of effects of one variable on another contribute to the attainment of the major concepts of science.

INFERRING

- Synthesizing, analyzing
- Generalizing
- Recognizing and predicting patterns; stating laws
- Formulating explanatory models and theorizing

The process of realizing ideas that are *not* directly observable is the process of inferring. The process leads to predictive explanations for simple and complex phenomena.

APPLYING

- Using knowledge to solve problems
- Inventing (technology)

Use of knowledge is the applying of knowledge. Inventing, creating, problem solving, and determining probabilities are ways of using information that lead to gaining further information.

**Science Framework Addendum*, pp. 4–5.

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REVIEW OF PROCESS SKILLS[1]

To what extent are the following process skills taught throughout the textbook:	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
1. Observing?	X				
2. Communicating?	X				
3. Comparing?	X				
4. Organizing?		X			
5. Relating?		X			
6. Inferring?		X			
7. Applying?			X		

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[1] *Science Framework Addendum*, p. 5.

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III. BIOLOGY: TEACHER'S EDITION

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the textbook include:				
1. Alternative strategies for organizing the course? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2 and Number 4)	X			
2. A range of suggested instructional activities? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 3)		X		
3. Material that engages students in using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)			X	
4. Varied activities to meet instructional needs of students with different learning styles and interests? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 1)		X		

5. Consideration of the instructional needs of limited-English-proficient students? (*Science Framework Addendum*, p. 103, "General Criteria")				X
6. Identification of process skills related to specific activities? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6 and Number 7)			X	
7. Instructional activities that integrate knowledge and skills learned in other disciplines; e.g., mathematics or history? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)			X	
8. Suggestions for structuring group instruction; e.g., cooperative learning? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2)				X
9. A listing of additional resources for extended and in-depth supplemental activities? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 3)				X
10. A variety of assessment techniques; e.g., number and types of questions such as essay, definitions, and discussion? (*Science Framework Addendum*, p. 104, "Assessment and Evaluation," Number 1 and Number 2)		X		

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IV. BIOLOGY: STUDENT'S LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. To what extent does the student's laboratory manual include:				
1. Experiences that reinforce the major concepts covered in the student's edition? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)	X			
2. Directions for laboratory setup, procedures, and data reporting related to the laboratory experiences? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8)	X			
3. Information that emphasizes safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9)	X			
4. Assignments that integrate knowledge and skills learned in other disciplines; e.g., reading and writing? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		

5. Assignments that guide students toward using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
6. Information that promotes sensitivity to the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)		X		
B. To what extent are the following process skills taught throughout the laboratory manual:*				
1. Observing?	X			
2. Communicating?	X			
3. Comparing?	X			
4. Organizing?		X		
5. Relating?		X		
6. Inferring?			X	
7. Applying?				X

***Science Framework Addendum*, p. 5 and p. 104, "Content and Process," Number 7.

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V. BIOLOGY: TEACHER'S EDITION OF THE LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the laboratory manual include:				
1. Information that encourages the shared responsibility for safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9; "Teachers' Materials," Number 9)		X		
2. Opportunities to demonstrate the interrelatedness of scientific information and process skills? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)			X	
3. Material which guides students to use higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)			X	
4. Opportunities to integrate knowledge and skills from other disciplines; e.g., writing of laboratory reports? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		

5. Instructional alternatives as appropriate and necessary? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 4)	X			
6. Resource lists for acquiring: a. Equipment?	X			
b. Chemicals?	X			
c. Supplies?	X			
d. Preserved and living specimens? (*Science Framework Addendum*, p. 104, "Teachers' Materials," Number 2)	X			
7. Necessary solutions and recipes? (*Science Framework Addendum*, pp. 104–105, "Teachers' Materials," Number 2)	X			
8. Information on the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)		X		
9. List of supplemental materials and resources? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 2f)	X			
10. Information about outdoor biology fieldwork? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 7)	X			

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Kendall/Hunt Publishing Company	***Biological Science: An Ecological Approach***	**1987**

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. What is biology? To what extent does the textbook include discussions about: 1. The distinguishing characteristics of life; e.g., reproduction and growth? (*Science Framework Addendum*, p. 14)				X	
2. Scientific reasoning; e.g., induction, deduction, observation, fact, hypothesis, theory, and inference? (*Science Framework Addendum*, pp. 8, 12; *Standards,*[*] p. S-1; *Statement,*[†] p. 9)			X		
3. Research methods and tools of biologists; e.g., microscopes, centrifuge, and metric measurement? (*Science Framework Addendum*, pp. 23, 26, 27)			X		
4. Science, Technology, Individuals, and Society (STIS) issues; e.g., health, ethical concerns, careers, and economic impact? (*Science Framework Addendum*, p. 13; *Statement*, Number 13 and Number 16, p. 20)	X				

___ Factual inaccuracies, if any, in the preceding section[‡]					
B. Ecology To what extent does the textbook include discussions about: 1. Diversity and stability in ecosystems? (*Science Framework Addendum*, pp. 41–42)	X				
2. Biotic and abiotic interrelationships; e.g., chains, cycles (such as carbon, nitrogen, and water), and symbiotic relationships? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11; *Statement*, Number 4, p. 18)	X				
3. Levels of ecological organization; e.g., communities, biomes, and populations? (*Science Framework Addendum*, pp. 39, 42; *Standards*, Number 4, p. S-5, and Number 16, p. S-11; *Statement*, Number 11, p. 19)	X				
4. The energy flow through the ecosystem; e.g., trophic levels and energy pyramids? (*Science Framework Addendum*, p. 40; *Statement*, Number 4, p. 18, and Number 11, p. 19)		X			
5. The impact of society on the natural environment; e.g., pollution, endangered species, resource depletion, and recycling? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11; *Statement*, Number 4, p. 18, and Number 11, p. 20)	X				
___ Factual inaccuracies, if any, in the preceding section					
C. Heredity To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Mendel, Morgan, Sutton, Watson, and Crick? (*Science Framework Addendum*, p. 8; *Standards*, Number 12, p. S-9, and Number 14, p. S-10; *Statement*, p. 12)			X		

NOTE: The secondary biology textbook review instrument is correlated with the following resource documents:

- The *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve* is cited as *Science Framework Addendum*.
- [*]*Model Curriculum Standards: Grades Nine Through Twelve* is cited as *Standards*.
- [†]The *Statement on Preparation in Natural Science Expected of Entering Freshmen* is cited as *Statement*.

The first two documents are published by the California State Department of Education. The last one listed was issued by the Academic Senates of the California Community Colleges, the California State University, and the University of California in cooperation with the California Round Table on Educational Opportunity. Each publication is available from the California State Department of Education (see pages 403 and 404 for ordering information).

[‡] See "Factual Inaccuracies" on page xii.

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
C. Heredity—Continued					
2. Scientific tools to model heredity; e.g., probability, statistics, and pedigrees? (*Science Framework Addendum*, p. 20; *Standards*, Number 14, p. S-10)			X		
3. Cell cycle, meiosis, and mitosis? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 5, p. 18)			X		
4. Chromosomes, genes, DNA, and RNA? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)			X		
5. Biochemical aspects of heredity; e.g., transcription, translation, and protein synthesis? (*Science Framework Addendum*, p. 19; *Statement*, Number 7, p. 18)				X	

6. Gene and chromosome mutations; e.g., inversions, insertions, and nonsense codons? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)				X	
7. Human genetic variability; e.g., color blindness, baldness, and blood groups? (*Science Framework Addendum*, p. 17; *Standards*, Number 14, p. S-10; *Statement*, Number 7, p. 18)				X	
8. The influence of heredity on health and disease; e.g., sickle-cell anemia, hemophilia, and Down's syndrome? (*Standards*, Number 12, p. S-9; *Statement*, Number 13, p. 20)				X	
9. STIS issues; e.g., selective breeding and techniques and ethics of genetic engineering? (*Science Framework Addendum*, pp. 19–20; *Statement*, Number 5, p. 18, and Number 13, p. 20)				X	
__ Factual inaccuracies, if any, in the preceding section					
D. Evolution To what extent does the textbook include discussions about: 1. The genetic basis of evolution; e.g., genes as the source of variation? (*Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)			X		
2. A historical perspective; e.g., works of Lamarck, Wallace, and Darwin? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1, and Number 15, p. S-11; *Statement*, p. 12, and Number 6, p. 18)			X		
3. Scientific evidence; e.g., paleontology, genetics, biochemistry, and comparative anatomy? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 6, p. 18)			X		
4. Fossil evidence for evolution; e.g., skeletons, pollen, dating methods, and sequence of fossil forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)			X		
5. Evolutionary processes and their effects; e.g., selection, drift, adaptation, speciation, and extinction? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11)		X			

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D. Evolution—Continued					
6. Scientific theories about the origin of life; e.g., inorganic to organic? (*Science Framework Addendum*, p. 24; *Statement*, Number 6, p. 18)			X		
7. The history of life on earth; e.g., evolution from unicellular to multicellular and more specialized forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)		X			
8. Human evolution; e.g., paleoanthropology and the work on "Lucy"? (*Science Framework Addendum*, p. 35; *Statement*, Number 6, p. 18)		X			
225 ___ Factual inaccuracies, if any, in the preceding section					226

E. Classification To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Aristotle and Linnaeus? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
2. Evolutionary relationships as the basis of classification? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 8, p. 19)			X		
3. Principles of classification; e.g., hierarchy and binomial nomenclature? (*Standards*, Number 3, p. S-5; *Statement*, Number 8, p. 19)		X			
4. Comparative anatomy, genetic structure (phenotypes), and biochemistry as data sets for classification? (*Science Framework Addendum*, p. 20; *Statement*, Number 8, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					
F. Chemistry To what extent does the textbook include discussions about: 1. Atoms, molecules, chemical bonds, reactions, and the periodic table? (*Science Framework Addendum*, p. 24; *Statement*, Number 2, p. 17)				X	
2. The structure and function of molecules in living things; e.g., proteins, nucleic acids, lipids, and polysaccarides? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 2, p. 17)			X		
3. Energy processes; e.g., laws of thermodynamics, diffusion, osmosis, and enzyme kinetics? (*Science Framework Addendum*, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					
G. Cells To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Hook, Schleiden, Schwann, and Virchow? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	

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G. Cells—Continued					
2. The structure and function of cells and cell components, including the similarities and differences between plant and animal cells? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 1, p. 17)			X		
3. Cellular homeostasis? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)				X	
4. Cellular respiration? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)		X			
5. Photosynthesis? (*Science Framework Addendum*, p. 24; *Standards*, Number 11, p. S-9; *Statement*, Number 14, p. 18)		X			

6. Levels of organization, cells to systems? (*Standards*, Number 2, p. S-4; *Statement*, Number 3, p. 18)			X		
___ Factual inaccuracies, if any, in the preceding section					

H. Viruses

To what extent does the textbook include discussions about:

1. The taxonomy of viruses; e.g., rhinoviruses, herpes simplex, and retroviruses? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)			X		
2. A historical perspective; e.g., tobacco mosaic virus, polio, Jenner, or Pasteur? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
3. The viral structures and their functions? (*Science Framework Addendum*, p. 27; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)			X		
4. Reproduction; e.g., invasion? (*Science Framework Addendum*, p. 27; *Statement*, Number 5, p. 18)				X	
5. STIS issues: nature of viral diseases and their social and economic impact; e.g., AIDS, influenza, and German measles? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)				X	
___ Factual inaccuracies, if any, in the preceding section					

I. Monera

To what extent does the textbook include discussions about:

1. The evolution, the phylogeny, and taxonomy of monera? (*Science Framework Addendum*, pp. 15, 18; *Statement*, Number 10, p. 19)			X		
2. A historical perspective; e.g., Pasteur or Koch? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
3. The distinguishing structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)				X	

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I. Monera—Continued					
4. Reproduction? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)				X	
5. Diseases caused by monera; e.g., strep throat, urinary tract infections, and STDs? (*Science Framework Addendum*, p. 27)				X	
6. Interrelationships with other living things and the environment; e.g., nitrogen fixation and decomposition? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)		X			
7. STIS issues; e.g., food production, waste disposal, pollution, and genetic engineering? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					

J. Protists To what extent does the textbook include discussions about:					
1. The evolution, the phylogeny, and taxonomy of protists? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)		X			
2. Protists' structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		
3. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)		X			
4. Diseases caused by protists; e.g., gingivitis, dysentery, and malaria? (*Science Framework Addendum*, p. 27; *Statement*, Number 10, p. 19)				X	
5. Interrelationships with other living things and the environment; e.g., symbiosis? (*Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)				X	
6. STIS issues; e.g., food sanitation, industrial products, waste disposal, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 10, p. 19)				X	
___ Factual inaccuracies, if any, in the preceding section					
K. Fungi To what extent does the textbook include discussions about:					
1. The evolution, the phylogeny, and taxonomy of fungi? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)			X		
2. A historical perspective; e.g., Fleming? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)					X
3. The fungal structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)				X	
4. Growth and development? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)				X	

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K. Fungi—Continued					
5. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		
6. Diseases caused by fungi; e.g., ringworm, yeast infection, athlete's foot, smuts, and rusts? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)				X	
7. Interrelationships with other living things and the environment; e.g., decomposition, symbiosis (lichen), and mycorrhiza? (*Standards*, Number 10, p. S-8; *Statement*, Number 10, p. 19)			X		
8. STIS issues; e.g., food (toxic mushrooms), beverages, antibiotics, and fungicides? (*Science Framework Addendum*, p. 26; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		

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L. Plants To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of plants? (*Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)		X			
2. Plant structures and their functions; e.g., photosynthesis, food storage, and transport? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8, and Number 11, p. S-9; *Statement*, Number 10, p. 19)		X			
3. Adaptations for land existence? (*Science Framework Addendum*, pp. 18, 22, 24; *Statement*, p. 16, Number 10, p. 19)			X		
4. Growth and development, including the role of hormones? (*Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)		X			
5. Propagation and reproduction, including role of pollinators? (*Science Framework Addendum*, p. 25; *Statement*, Number 5, p. 18)		X			
6. Response to stimuli? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8)			X		
7. Health and disease states of plants; e.g., nutrient deficiencies and parasites? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)			X		
8. STIS issues; e.g., horticulture and environmental concerns, timber harvest, defolients, and endangered species? (*Science Framework Addendum*, p. 25; *Standards*, Number 10, p. S-8, Number 16, p. S-11, and Number 17, p. S-12)	X				
___ Factual inaccuracies, if any, in the preceding section					
M. Animals To what extent does the textbook include discussions about: 1. The taxonomic diversity of animals? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)			X		

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
M. Animals—Continued					
2. Invertebrates					
To what extent does the textbook include discussions about:					
a. Invertebrate structures and their functions; e.g., systems, symmetry? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)			X		
b. Evolutionary relationships and fossil histories? (*Standards*, Number 15, p. S-11; *Statement*, p. 16, and Number 9, p. 19)				X	
c. Adaptations; e.g., for feeding and locomotion? (*Standards*, Number 15, p. S-11)				X	
d. Growth, development, and embryology? (*Science Framework Addendum*, pp. 30–31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)					X

e. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 30; *Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18, and Number 9, p. 19)			X		
f. Behavior; e.g., innate versus learned, social behaviors, communication, and reproductive behaviors? (*Standards*, Number 5, p. S-6)			X		
g. Health and diseases; e.g., vectors and parasitism? (*Science Framework Addendum*, p. 25; *Statement*, Number 13, p. 20)			X		
h. STIS issues; e.g., agriculture, food, pests, pest control, and aquaculture? (*Standards*, Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 19)			X		
3. Chordates (nonhuman) To what extent does the textbook include discussions about:					
a. Chordate structures and their functions; e.g., comparative anatomy and physiology and classical chordate characteristics? (*Science Framework Addendum*, pp. 28, 30; *Standards*, Number 7, p. S-7, and Number 9, p. S-8; *Statement*, Number 9, p. 19)			X		
b. Evolutionary relationships and fossil histories? (*Science Framework Addendum*, pp. 15, 18; *Statement*, p. 16, and Number 9, p. 19)				X	
c. Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, p. 30)				X	
d. Growth, development, and embryology? (*Science Framework Addendum*, p. 31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)			X		
e. Reproduction? (*Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18)				X	
f. Behavior; e.g., innate versus learned, social behaviors, or communications? (*Standards*, Number 5, p. S-6; *Statement*, Number 9, p. 19)			X		
g. STIS issues; e.g., wildlife management, live animals used in research, veterinary medicine, and endangered species? (*Science Framework Addendum*, p. 13; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 20)				X	

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M. Animals—Continued					
4. Vertebrates (Human)					
To what extent does the textbook include discussions about:					
a. Structure, function, and maintenance of major body systems:					
(1) Nervous system and sense organs?		X			
(2) Circulatory system?		X			
(3) Digestive system?		X			
(4) Respiratory system?			X		
(5) Reproductive system?		X			

(6)	Musculoskeletal system?			X		
(7)	Excretory system?			X		
(8)	Integumentary system?					X
(9)	The endocrine system? (*Science Framework Addendum*, p. 33; *Standards*, Number 7, p. S-7; *Statement*, Number 9, p. 19, and Number 12, p. 20)			X		
b.	Evolutionary relationships and fossil histories? (*Science Framework Addendum*, p. 35; *Statement*, p. 16, and Number 9, p. 19)		X			
c.	Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, pp. 32, 33, 35, 37)				X	
d.	Growth, development, and embryology? (*Science Framework Addendum*, p. 34; *Standards*, Number 7 and Number 8, p. S-7; *Statement*, Number 12, p. 20)			X		
e.	Behavior; e.g., innate versus learned, social behaviors, and communication? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 5 and Number 6, p. S-6; *Statement*, Number 12, p. 20)			X		
f.	Health, diseases, and immunity; e.g., genetic, communicable, degenerative, cancer, diagnostic instruments, and STDs? (*Science Framework Addendum*, p. 35; *Standards*, Number 17, p. S-12)	X				
g.	Interrelationships with other living things and the environment; e.g., domestication of plants and animals or habitat destruction? (*Standards*, Number 4, p. S-5; *Statement*, Number 11, p. 19)	X				
h.	STIS issues; e.g., substance abuse? (*Science Framework Addendum*, p. 35)			X		
i.	STIS issues; e.g., genetic counseling, population and demography, environmental issues, euthanasia, and life support systems? (*Science Framework Addendum*, pp. 12–13, 31, 37; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 13 and Number 16, p. 20)	X				
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II. BIOLOGY: PROCESS SKILLS (STUDENT'S EDITION)

DESCRIPTIONS OF PROCESSES*

OBSERVING

- Seeing
- Hearing
- Feeling
- Tasting
- Smelling

The main route to knowledge is through observing, using all the senses. This process is a distinct one by which people come to know about the characteristics of objects and their interactions.

COMMUNICATING

- Silent
- Oral
- Written
- Pictorial

Objects are named and events are described by people so that they can tell others about them. Communicating is a fundamental human process that enables one to learn more about a greater range of information than could be learned without this process.

COMPARING

- Sensory comparisons
- Relative positive comparisons
- Linear comparisons
- Weight comparisons
- Capacity comparisons
- Quantity comparisons

Comparing is a distinct process by which people systematically examine objects and events in terms of similarities and differences. By comparing the known to something unknown, one gains knowledge about the unknown. All measurements are forms of comparing.

ORGANIZING

- Data gathering
- Sequencing
- Grouping
- Classifying

Knowledge of principles and laws is gained only through the systematic compiling, classifying, and ordering of observed and compared data. Bodies of knowledge grow from long-term organizing processes.

RELATING

- Using space-time relationships
- Formulating experimental hypotheses
- Controlling and manipulating variables
- Experimenting

Relating is a process by which concrete and abstract ideas are woven together to test or explain phenomena. Hypothetical-deductive reasoning, coordinate graphing, the managing of variables, and the comparison of effects of one variable on another contribute to the attainment of the major concepts of science.

INFERRING

- Synthesizing, analyzing
- Generalizing
- Recognizing and predicting patterns; stating laws
- Formulating explanatory models and theorizing

The process of realizing ideas that are *not* directly observable is the process of inferring. The process leads to predictive explanations for simple and complex phenomena.

APPLYING

- Using knowledge to solve problems
- Inventing (technology)

Use of knowledge is the applying of knowledge. Inventing, creating, problem solving, and determining probabilities are ways of using information that lead to gaining further information.

**Science Framework Addendum*, pp. 4–5.

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REVIEW OF PROCESS SKILLS[1]

To what extent are the following process skills taught throughout the textbook:	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
1. Observing?	X				
2. Communicating?	X				
3. Comparing?	X				
4. Organizing?	X				
5. Relating?	X				
6. Inferring?	X				
7. Applying?			X		

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[1] *Science Framework Addendum*, p. 5.

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III. BIOLOGY: TEACHER'S EDITION

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the textbook include: 1. Alternative strategies for organizing the course? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2 and Number 4)			X	
2. A range of suggested instructional activities? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 3)	X			
3. Material that engages students in using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)	X			
4. Varied activities to meet instructional needs of students with different learning styles and interests? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 1)	X			

5. Consideration of the instructional needs of limited-English-proficient students? (*Science Framework Addendum*, p. 103, "General Criteria")			X	
6. Identification of process skills related to specific activities? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6 and Number 7)		X		
7. Instructional activities that integrate knowledge and skills learned in other disciplines; e.g., mathematics or history? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)	X			
8. Suggestions for structuring group instruction; e.g., cooperative learning? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2)		X		
9. A listing of additional resources for extended and in-depth supplemental activities? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 3)	X			
10. A variety of assessment techniques; e.g., number and types of questions such as essay, definitions, and discussion? (*Science Framework Addendum*, p. 104, "Assessment and Evaluation," Number 1 and Number 2)		X		

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IV. BIOLOGY: STUDENT'S LABORATORY MANUAL

DEFINITION OF TERMS

DEGREE OF EMPHASIS

HIGH EMPHASIS means that the feature is covered and is illustrated by *many* examples.

MODERATE EMPHASIS means that the feature is covered and is illustrated by *few* examples.

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. To what extent does the student's laboratory manual include:				
1. Experiences that reinforce the major concepts covered in the student's edition? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)	X			
2. Directions for laboratory setup, procedures, and data reporting related to the laboratory experiences? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8)	X			
3. Information that emphasizes safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9)	X			
4. Assignments that integrate knowledge and skills learned in other disciplines; e.g., reading and writing? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)	X			

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5. Assignments that guide students toward using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)	X			
6. Information that promotes sensitivity to the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)		X		
B. To what extent are the following process skills taught throughout the laboratory manual:*				
1. Observing?	X			
2. Communicating?	X			
3. Comparing?	X			
4. Organizing?	X			
5. Relating?	X			
6. Inferring?	X			
7. Applying?		X		

**Science Framework Addendum*, p. 5 and p. 104, "Content and Process," Number 7.

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V. BIOLOGY: TEACHER'S EDITION OF THE LABORATORY MANUAL

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To what extent does the teacher's edition of the laboratory manual include:				
1. Information that encourages the shared responsibility for safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9; "Teachers' Materials," Number 9)	X			
2. Opportunities to demonstrate the interrelatedness of scientific information and process skills? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)	X			
3. Material which guides students to use higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)	X			
4. Opportunities to integrate knowledge and skills from other disciplines; e.g., writing of laboratory reports? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)	X			

5. Instructional alternatives as appropriate and necessary? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 4)		X		
6. Resource lists for acquiring: a. Equipment?	X			
b. Chemicals?	X			
c. Supplies?	X			
d. Preserved and living specimens? (*Science Framework Addendum*, p. 104, "Teachers' Materials," Number 2)	X			
7. Necessary solutions and recipes? (*Science Framework Addendum*, pp. 104–105, "Teachers' Materials," Number 2)	X			
8. Information on the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)	X			
9. List of supplemental materials and resources? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 2f)	X			
10. Information about outdoor biology fieldwork? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 7)			X	

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I. BIOLOGY: CONTENT (STUDENT'S EDITION)

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. What is biology? To what extent does the textbook include discussions about:					
1. The distinguishing characteristics of life; e.g., reproduction and growth? (*Science Framework Addendum*, p. 14)		X			
2. Scientific reasoning; e.g., induction, deduction, observation, fact, hypothesis, theory, and inference? (*Science Framework Addendum*, pp. 8, 12; *Standards*,* p. S-1; *Statement*,† p. 9)			X		
3. Research methods and tools of biologists; e.g., microscopes, centrifuge, and metric measurement? (*Science Framework Addendum*, pp. 23, 26, 27)	X				
4. Science, Technology, Individuals, and Society (STIS) issues; e.g., health, ethical concerns, careers, and economic impact? (*Science Framework Addendum*, p. 13; *Statement*, Number 13 and Number 16, p. 20)	X				

___ Factual inaccuracies, if any, in the preceding section‡					
B. Ecology To what extent does the textbook include discussions about: 1. Diversity and stability in ecosystems? (*Science Framework Addendum*, pp. 41–42)		X			
2. Biotic and abiotic interrelationships; e.g., chains, cycles (such as carbon, nitrogen, and water), and symbiotic relationships? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11; *Statement*, Number 4, p. 18)		X			
3. Levels of ecological organization; e.g., communities, biomes, and populations? (*Science Framework Addendum*, pp. 39, 42; *Standards*, Number 4, p. S-5, and Number 16, p. S-11; *Statement*, Number 11, p. 19)	X				
4. The energy flow through the ecosystem; e.g., trophic levels and energy pyramids? (*Science Framework Addendum*, p. 40; *Statement*, Number 4, p. 18, and Number 11, p. 19)			X		
5. The impact of society on the natural environment; e.g., pollution, endangered species, resource depletion, and recycling? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11; *Statement*, Number 4, p. 18, and Number 11, p. 20)	X				
___ Factual inaccuracies, if any, in the preceding section					
C. Heredity To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Mendel, Morgan, Sutton, Watson, and Crick? (*Science Framework Addendum*, p. 8; *Standards*, Number 12, p. S-9, and Number 14, p. S-10; *Statement*, p. 12)			X		

NOTE: The secondary biology textbook review instrument is correlated with the following resource documents:

- The *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve* is cited as *Science Framework Addendum*.
- **Model Curriculum Standards: Grades Nine Through Twelve* is cited as *Standards*.
- †The *Statement on Preparation in Natural Science Expected of Entering Freshmen* is cited as *Statement*.

The first two documents are published by the California State Department of Education. The last one listed was issued by the Academic Senates of the California Community Colleges, the California State University, and the University of California in cooperation with the California Round Table on Educational Opportunity. Each publication is available from the California State Department of Education (see pages 403 and 404 for ordering information).

‡See "Factual Inaccuracies" on page xii.

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
C. Heredity—Continued					
2. Scientific tools to model heredity; e.g., probability, statistics, and pedigrees? (*Science Framework Addendum*, p. 20; *Standards*, Number 14, p. S-10)		X			
3. Cell cycle, meiosis, and mitosis? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 5, p. 18)		X			
4. Chromosomes, genes, DNA, and RNA? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)	X				
5. Biochemical aspects of heredity; e.g., transcription, translation, and protein synthesis? (*Science Framework Addendum*, p. 19; *Statement*, Number 7, p. 18)			X		

6. Gene and chromosome mutations; e.g., inversions, insertions, and nonsense codons? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)			X		
7. Human genetic variability; e.g., color blindness, baldness, and blood groups? (*Science Framework Addendum*, p. 17; *Standards*, Number 14, p. S-10; *Statement*, Number 7, p. 18)				X	
8. The influence of heredity on health and disease; e.g., sickle-cell anemia, hemophilia, and Down's syndrome? (*Standards*, Number 12, p. S-9; *Statement*, Number 13, p. 20)			X		
9. STIS issues; e.g., selective breeding and techniques and ethics of genetic engineering? (*Science Framework Addendum*, pp. 19–20; *Statement*, Number 5, p. 18, and Number 13, p. 20)			X		
___ Factual inaccuracies, if any, in the preceding section					

D. Evolution

To what extent does the textbook include discussions about:

1. The genetic basis of evolution; e.g., genes as the source of variation? (*Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)				X	
2. A historical perspective; e.g., works of Lamarck, Wallace, and Darwin? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1, and Number 15, p. S-11; *Statement*, p. 12, and Number 6, p. 18)			X		
3. Scientific evidence; e.g., paleontology, genetics, biochemistry, and comparative anatomy? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 6, p. 18)		X			
4. Fossil evidence for evolution; e.g., skeletons, pollen, dating methods, and sequence of fossil forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)		X			
5. Evolutionary processes and their effects; e.g., selection, drift, adaptation, speciation, and extinction? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11)	X				

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
D. Evolution—Continued					
6. Scientific theories about the origin of life; e.g., inorganic to organic? (*Science Framework Addendum*, p. 24; *Statement*, Number 6, p. 18)			X		
7. The history of life on earth; e.g., evolution from unicellular to multicellular and more specialized forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)			X		
8. Human evolution; e.g., paleoanthropology and the work on "Lucy"? (*Science Framework Addendum*, p. 35; *Statement*, Number 6, p. 18)			X		
Factual inaccuracies, if any, in the preceding section					

E. Classification To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Aristotle and Linnaeus? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		
2. Evolutionary relationships as the basis of classification? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 8, p. 19)				X	
3. Principles of classification; e.g., hierarchy and binomial nomenclature? (*Standards*, Number 3, p. S-5; *Statement*, Number 8, p. 19)			X		
4. Comparative anatomy, genetic structure (phenotypes), and biochemistry as data sets for classification? (*Science Framework Addendum*, p. 20; *Statement*, Number 8, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					
F. Chemistry To what extent does the textbook include discussions about: 1. Atoms, molecules, chemical bonds, reactions, and the periodic table? (*Science Framework Addendum*, p. 24; *Statement*, Number 2, p. 17)		X			
2. The structure and function of molecules in living things; e.g., proteins, nucleic acids, lipids, and polysaccarides? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 2, p. 17)		X			
3. Energy processes; e.g., laws of thermodynamics, diffusion, osmosis, and enzyme kinetics? (*Science Framework Addendum*, p. 19)		X			
___ Factual inaccuracies, if any, in the preceding section					
G. Cells To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Hook, Schleiden, Schwann, and Virchow? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
G. Cells—Continued					
2. The structure and function of cells and cell components, including the similarities and differences between plant and animal cells? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 1, p. 17)	X				
3. Cellular homeostasis? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)			X		
4. Cellular respiration? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)	X				
5. Photosynthesis? (*Science Framework Addendum*, p. 24; *Standards*, Number 11, p. S-9; *Statement*, Number 14, p. 18)	X				

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6. Levels of organization, cells to systems? (*Standards*, Number 2, p. S-4; *Statement*, Number 3, p. 18)				X	
___ Factual inaccuracies, if any, in the preceding section					
H. Viruses To what extent does the textbook include discussions about: 1. The taxonomy of viruses; e.g., rhinoviruses, herpes simplex, and retroviruses? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)				X	
2. A historical perspective; e.g., tobacco mosaic virus, polio, Jenner, or Pasteur? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
3. The viral structures and their functions? (*Science Framework Addendum*, p. 27; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)				X	
4. Reproduction; e.g., invasion? (*Science Framework Addendum*, p. 27; *Statement*, Number 5, p. 18)			X		
5. STIS issues: nature of viral diseases and their social and economic impact; e.g., AIDS, influenza, and German measles? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					
I. Monera To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of monera? (*Science Framework Addendum*, pp. 15, 18; *Statement*, Number 10, p. 19)			X		
2. A historical perspective; e.g., Pasteur or Koch? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
3. The distinguishing structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		

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I. Monera—Continued					
4. Reproduction? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		
5. Diseases caused by monera; e.g., strep throat, urinary tract infections, and STDs? (*Science Framework Addendum*, p. 27)	X				
6. Interrelationships with other living things and the environment; e.g., nitrogen fixation and decomposition? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)	X				
7. STIS issues; e.g., food production, waste disposal, pollution, and genetic engineering? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		
__ Factual inaccuracies, if any, in the preceding section					

J. Protists To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of protists? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		
2. Protists' structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)		X			
3. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		
4. Diseases caused by protists; e.g., gingivitis, dysentery, and malaria? (*Science Framework Addendum*, p. 27; *Statement*, Number 10, p. 19)			X		
5. Interrelationships with other living things and the environment; e.g., symbiosis? (*Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)			X		
6. STIS issues; e.g., food sanitation, industrial products, waste disposal, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 10, p. 19)				X	
— Factual inaccuracies, if any, in the preceding section					
K. Fungi To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of fungi? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)			X		
2. A historical perspective; e.g., Fleming? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
3. The fungal structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		
4. Growth and development? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)				X	

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
K. Fungi—Continued					
5. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)		X			
6. Diseases caused by fungi; e.g., ringworm, yeast infection, athlete's foot, smuts, and rusts? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)			X		
7. Interrelationships with other living things and the environment; e.g., decomposition, symbiosis (lichen), and mycorrhiza? (*Standards*, Number 10, p. S-8; *Statement*, Number 10, p. 19)			X		
8. STIS issues; e.g., food (toxic mushrooms), beverages, antibiotics, and fungicides? (*Science Framework Addendum*, p. 26; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		

___ Factual inaccuracies, if any, in the preceding section					
L. Plants To what extent does the textbook include discussions about:					
1. The evolution, the phylogeny, and taxonomy of plants? (*Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)		X			
2. Plant structures and their functions; e.g., photosynthesis, food storage, and transport? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8, and Number 11, p. S-9; *Statement*, Number 10, p. 19)	X				
3. Adaptations for land existence? (*Science Framework Addendum*, pp. 18, 22, 24; *Statement*, p. 16, Number 10, p. 19)		X			
4. Growth and development, including the role of hormones? (*Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)		X			
5. Propagation and reproduction, including role of pollinators? (*Science Framework Addendum*, p. 25; *Statement*, Number 5, p. 18)		X			
6. Response to stimuli? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8)			X		
7. Health and disease states of plants; e.g., nutrient deficiencies and parasites? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)			X		
8. STIS issues; e.g., horticulture and environmental concerns, timber harvest, defolients, and endangered species? (*Science Framework Addendum*, p. 25; *Standards*, Number 10, p. S-8, Number 16, p. S-11, and Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					
M. Animals To what extent does the textbook include discussions about:					
1. The taxonomic diversity of animals? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)		X			

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
M. Animals—Continued					
2. Invertebrates To what extent does the textbook include discussions about:					
a. Invertebrate structures and their functions; e.g., systems, symmetry? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)		X			
b. Evolutionary relationships and fossil histories? (*Standards*, Number 15, p. S-11; *Statement*, p. 16, and Number 9, p. 19)			X		
c. Adaptations; e.g., for feeding and locomotion? (*Standards*, Number 15, p. S-11)		X			
d. Growth, development, and embryology? (*Science Framework Addendum*, pp. 30–31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)			X		

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e. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 30; *Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18, and Number 9, p. 19)			X		
f. Behavior; e.g., innate versus learned, social behaviors, communication, and reproductive behaviors? (*Standards*, Number 5, p. S-6)		X			
g. Health and diseases; e.g., vectors and parasitism? (*Science Framework Addendum*, p. 25; *Statement*, Number 13, p. 20)			X		
h. STIS issues; e.g., agriculture, food, pests, pest control, and aquaculture? (*Standards*, Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 19)		X			
3. Chordates (nonhuman) To what extent does the textbook include discussions about: a. Chordate structures and their functions; e.g., comparative anatomy and physiology and classical chordate characteristics? (*Science Framework Addendum*, pp. 28, 30; *Standards*, Number 7, p. S-7, and Number 9, p. S-8; *Statement*, Number 9, p. 19)	X				
b. Evolutionary relationships and fossil histories? (*Science Framework Addendum*, pp. 15, 18; *Statement*, p. 16, and Number 9, p. 19)			X		
c. Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, p. 30)	X				
d. Growth, development, and embryology? (*Science Framework Addendum*, p. 31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)		X			
e. Reproduction? (*Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18)		X			
f. Behavior; e.g., innate versus learned, social behaviors, or communications? (*Standards*, Number 5, p. S-6; *Statement*, Number 9, p. 19)			X		
g. STIS issues; e.g., wildlife management, live animals used in research, veterinary medicine, and endangered species? (*Science Framework Addendum*, p. 13; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 20)			X		

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
M. Animals—Continued					
4. Vertebrates (Human)					
To what extent does the textbook include discussions about:					
a. Structure, function, and maintenance of major body systems:					
(1) Nervous system and sense organs?	X				
(2) Circulatory system?		X			
(3) Digestive system?		X			
(4) Respiratory system?			X		
(5) Reproductive system?			X		

	(6) Musculoskeletal system?		X			
	(7) Excretory system?			X		
	(8) Integumentary system?				X	
	(9) The endocrine system? (*Science Framework Addendum*, p. 33; *Standards*, Number 7, p. S-7; *Statement*, Number 9, p. 19, and Number 12, p. 20)		X			
b.	Evolutionary relationships and fossil histories? (*Science Framework Addendum*, p. 35; *Statement*, p. 16, and Number 9, p. 19)			X		
c.	Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, pp. 32, 33, 35, 37)			X		
d.	Growth, development, and embryology? (*Science Framework Addendum*, p. 34; *Standards*, Number 7 and Number 8, p. S-7; *Statement*, Number 12, p. 20)		X			
e.	Behavior; e.g., innate versus learned, social behaviors, and communication? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 5 and Number 6, p. S-6; *Statement*, Number 12, p. 20)			X		
f.	Health, diseases, and immunity; e.g., genetic, communicable, degenerative, cancer, diagnostic instruments, and STDs? (*Science Framework Addendum*, p. 35; *Standards*, Number 17, p. S-12)	X				
g.	Interrelationships with other living things and the environment; e.g., domestication of plants and animals or habitat destruction? (*Standards*, Number 4, p. S-5; *Statement*, Number 11, p. 19)	X				
h.	STIS issues; e.g., substance abuse? (*Science Framework Addendum*, p. 35)			X		
i.	STIS issues; e.g., genetic counseling, population and demography, environmental issues, euthanasia, and life support systems? (*Science Framework Addendum*, pp. 12–13, 31, 37; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 13 and Number 16, p. 20)	X				
•	Factual inaccuracies, if any, in the preceding section*					

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*A factual inaccuracy was noted in this section. The publisher has given assurances that the inaccuracy will be corrected in the next edition of this book. For more information see "Factual Inaccuracies" on page xii.

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Merrill Publishing Company	*Biology: Living Systems*	**1986**

II. BIOLOGY: PROCESS SKILLS (STUDENT'S EDITION)

DESCRIPTIONS OF PROCESSES*

OBSERVING

- Seeing
- Hearing
- Feeling
- Tasting
- Smelling

The main route to knowledge is through observing, using all the senses. This process is a distinct one by which people come to know about the characteristics of objects and their interactions.

COMMUNICATING

- Silent
- Oral
- Written
- Pictorial

Objects are named and events are described by people so that they can tell others about them. Communicating is a fundamental human process that enables one to learn more about a greater range of information than could be learned without this process.

COMPARING

- Sensory comparisons
- Relative positive comparisons
- Linear comparisons
- Weight comparisons
- Capacity comparisons
- Quantity comparisons

Comparing is a distinct process by which people systematically examine objects and events in terms of similarities and differences. By comparing the known to something unknown, one gains knowledge about the unknown. All measurements are forms of comparing.

ORGANIZING

- Data gathering
- Sequencing
- Grouping
- Classifying

Knowledge of principles and laws is gained only through the systematic compiling, classifying, and ordering of observed and compared data. Bodies of knowledge grow from long-term organizing processes.

RELATING

- Using space-time relationships
- Formulating experimental hypotheses
- Controlling and manipulating variables
- Experimenting

Relating is a process by which concrete and abstract ideas are woven together to test or explain phenomena. Hypothetical-deductive reasoning, coordinate graphing, the managing of variables, and the comparison of effects of one variable on another contribute to the attainment of the major concepts of science.

INFERRING

- Synthesizing, analyzing
- Generalizing
- Recognizing and predicting patterns; stating laws
- Formulating explanatory models and theorizing

The process of realizing ideas that are *not* directly observable is the process of inferring. The process leads to predictive explanations for simple and complex phenomena.

APPLYING

- Using knowledge to solve problems
- Inventing (technology)

Use of knowledge is the applying of knowledge. Inventing, creating, problem solving, and determining probabilities are ways of using information that lead to gaining further information.

**Science Framework Addendum*, pp. 4–5.

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REVIEW OF PROCESS SKILLS[1]

To what extent are the following process skills taught throughout the textbook:	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
1. Observing?	X				
2. Communicating?	X				
3. Comparing?	X				
4. Organizing?			X		
5. Relating?			X		
6. Inferring?				X	
7. Applying?				X	

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[1] *Science Framework Addendum*, p. 5.

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III. BIOLOGY: TEACHER'S EDITION

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the textbook include:				
1. Alternative strategies for organizing the course? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2 and Number 4)	X			
2. A range of suggested instructional activities? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 3)	X			
3. Material that engages students in using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)	X			
4. Varied activities to meet instructional needs of students with different learning styles and interests? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 1)	X			

5. Consideration of the instructional needs of limited-English-proficient students? (*Science Framework Addendum*, p. 103, "General Criteria")				X
6. Identification of process skills related to specific activities? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6 and Number 7)	X			
7. Instructional activities that integrate knowledge and skills learned in other disciplines; e.g., mathematics or history? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		
8. Suggestions for structuring group instruction; e.g., cooperative learning? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2)				X
9. A listing of additional resources for extended and in-depth supplemental activities? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 3)	X			
10. A variety of assessment techniques; e.g., number and types of questions such as essay, definitions, and discussion? (*Science Framework Addendum*, p. 104, "Assessment and Evaluation," Number 1 and Number 2)			X	

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IV. BIOLOGY: STUDENT'S LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. To what extent does the student's laboratory manual include:				
1. Experiences that reinforce the major concepts covered in the student's edition? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)	X			
2. Directions for laboratory setup, procedures, and data reporting related to the laboratory experiences? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8)	X			
3. Information that emphasizes safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9)	X			
4. Assignments that integrate knowledge and skills learned in other disciplines; e.g., reading and writing? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)	X			

5. Assignments that guide students toward using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
6. Information that promotes sensitivity to the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)				X
B. To what extent are the following process skills taught throughout the laboratory manual:*				
1. Observing?	X			
2. Communicating?	X			
3. Comparing?	X			
4. Organizing?		X		
5. Relating?		X		
6. Inferring?		X		
7. Applying?			X	

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* *Science Framework Addendum*, p. 5 and p. 104, "Content and Process," Number 7.

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V. BIOLOGY: TEACHER'S EDITION OF THE LABORATORY MANUAL

DEFINITION OF TERMS

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the laboratory manual include:				
1. Information that encourages the shared responsibility for safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9; "Teachers' Materials," Number 9)		X		
2. Opportunities to demonstrate the interrelatedness of scientific information and process skills? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)		X		
3. Material which guides students to use higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)			X	
4. Opportunities to integrate knowledge and skills from other disciplines; e.g., writing of laboratory reports? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		

5. Instructional alternatives as appropriate and necessary? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 4)		X		
6. Resource lists for acquiring: a. Equipment?	X			
b. Chemicals?	X			
c. Supplies?	X			
d. Preserved and living specimens? (*Science Framework Addendum*, p. 104, "Teachers' Materials," Number 2)	X			
7. Necessary solutions and recipes? (*Science Framework Addendum*, pp. 104–105, "Teachers' Materials," Number 2)	X			
8. Information on the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)				X
9. List of supplemental materials and resources? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 2f)		X		
10. Information about outdoor biology fieldwork? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 7)				X

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I. BIOLOGY: CONTENT (STUDENT'S EDITION)

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. What is biology? To what extent does the textbook include discussions about: 1. The distinguishing characteristics of life; e.g., reproduction and growth? (*Science Framework Addendum*, p. 14)		X			
2. Scientific reasoning; e.g., induction, deduction, observation, fact, hypothesis, theory, and inference? (*Science Framework Addendum*, pp. 8, 12; *Standards*,* p. S-1; *Statement*,† p. 9)			X		
3. Research methods and tools of biologists; e.g., microscopes, centrifuge, and metric measurement? (*Science Framework Addendum*, pp. 23, 26, 27)		X			
4. Science, Technology, Individuals, and Society (STIS) issues; e.g., health, ethical concerns, careers, and economic impact? (*Science Framework Addendum*, p. 13; *Statement*, Number 13 and Number 16, p. 20)	X				

___ Factual inaccuracies, if any, in the preceding section[‡]					
B. Ecology To what extent does the textbook include discussions about:					
1. Diversity and stability in ecosystems? (*Science Framework Addendum*, pp. 41–42)		X			
2. Biotic and abiotic interrelationships; e.g., chains, cycles (such as carbon, nitrogen, and water), and symbiotic relationships? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11; *Statement*, Number 4, p. 18)		X			
3. Levels of ecological organization; e.g., communities, biomes, and populations? (*Science Framework Addendum*, pp. 39, 42; *Standards*, Number 4, p. S-5, and Number 16, p. S-11; *Statement*, Number 11, p. 19)	X				
4. The energy flow through the ecosystem; e.g., trophic levels and energy pyramids? (*Science Framework Addendum*, p. 40; *Statement*, Number 4, p. 18, and Number 11, p. 19)		X			
5. The impact of society on the natural environment; e.g., pollution, endangered species, resource depletion, and recycling? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11; *Statement*, Number 4, p. 18, and Number 11, p. 20)		X			
___ Factual inaccuracies, if any, in the preceding section					
C. Heredity To what extent does the textbook include discussions about:					
1. A historical perspective; e.g., Mendel, Morgan, Sutton, Watson, and Crick? (*Science Framework Addendum*, p. 8; *Standards*, Number 12, p. S-9, and Number 14, p. S-10; *Statement*, p. 12)	X				

NOTE: The secondary biology textbook review instrument is correlated with the following resource documents:

- The *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve* is cited as *Science Framework Addendum*.
- [*] *Model Curriculum Standards: Grades Nine Through Twelve* is cited as *Standards*.
- [†] The *Statement on Preparation in Natural Science Expected of Entering Freshmen* is cited as *Statement*.

The first two documents are published by the California State Department of Education. The last one listed was issued by the Academic Senates of the California Community Colleges, the California State University, and the University of California in cooperation with the California Round Table on Educational Opportunity. Each publication is available from the California State Department of Education (see pages 403 and 404 for ordering information).

[‡] See "Factual Inaccuracies" on page xii.

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
C. Heredity—Continued					
2. Scientific tools to model heredity; e.g., probability, statistics, and pedigrees? (*Science Framework Addendum*, p. 20; *Standards*, Number 14, p. S-10)	X				
3. Cell cycle, meiosis, and mitosis? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 5, p. 18)		X			
4. Chromosomes, genes, DNA, and RNA? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)		X			
5. Biochemical aspects of heredity; e.g., transcription, translation, and protein synthesis? (*Science Framework Addendum*, p. 19; *Statement*, Number 7, p. 18)		X			

6. Gene and chromosome mutations; e.g., inversions, insertions, and nonsense codons? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)		X			
7. Human genetic variability; e.g., color blindness, baldness, and blood groups? (*Science Framework Addendum*, p. 17; *Standards*, Number 14, p. S-10; *Statement*, Number 7, p. 18)			X		
8. The influence of heredity on health and disease; e.g., sickle-cell anemia, hemophilia, and Down's syndrome? (*Standards*, Number 12, p. S-9; *Statement*, Number 13, p. 20)			X		
9. STIS issues; e.g., selective breeding and techniques and ethics of genetic engineering? (*Science Framework Addendum*, pp. 19–20; *Statement*, Number 5, p. 18, and Number 13, p. 20)	X				
__ Factual inaccuracies, if any, in the preceding section					

D. Evolution

To what extent does the textbook include discussions about:

1. The genetic basis of evolution; e.g., genes as the source of variation? (*Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)			X		
2. A historical perspective; e.g., works of Lamarck, Wallace, and Darwin? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1, and Number 15, p. S-11; *Statement*, p. 12, and Number 6, p. 18)		X			
3. Scientific evidence; e.g., paleontology, genetics, biochemistry, and comparative anatomy? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 6, p. 18)		X			
4. Fossil evidence for evolution; e.g., skeletons, pollen, dating methods, and sequence of fossil forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)		X			
5. Evolutionary processes and their effects; e.g., selection, drift, adaptation, speciation, and extinction? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11)		X			

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
D. Evolution—Continued					
6. Scientific theories about the origin of life; e.g., inorganic to organic? (*Science Framework Addendum*, p. 24; *Statement*, Number 6, p. 18)		X			
7. The history of life on earth; e.g., evolution from unicellular to multicellular and more specialized forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)			X		
8. Human evolution; e.g., paleoanthropology and the work on "Lucy"? (*Science Framework Addendum*, p. 35; *Statement*, Number 6, p. 18)			X		
___ Factual inaccuracies, if any, in the preceding section					

E. Classification To what extent does the textbook include discussions about:					
1. A historical perspective; e.g., Aristotle and Linnaeus? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		
2. Evolutionary relationships as the basis of classification? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 8, p. 19)			X		
3. Principles of classification; e.g., hierarchy and binomial nomenclature? (*Standards*, Number 3, p. S-5; *Statement*, Number 8, p. 19)			X		
4. Comparative anatomy, genetic structure (phenotypes), and biochemistry as data sets for classification? (*Science Framework Addendum*, p. 20; *Statement*, Number 8, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					
F. Chemistry To what extent does the textbook include discussions about:					
1. Atoms, molecules, chemical bonds, reactions, and the periodic table? (*Science Framework Addendum*, p. 24; *Statement*, Number 2, p. 17)		X			
2. The structure and function of molecules in living things; e.g., proteins, nucleic acids, lipids, and polysaccarides? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 2, p. 17)		X			
3. Energy processes; e.g., laws of thermodynamics, diffusion, osmosis, and enzyme kinetics? (*Science Framework Addendum*, p. 19)		X			
___ Factual inaccuracies, if any, in the preceding section					
G. Cells To what extent does the textbook include discussions about:					
1. A historical perspective; e.g., Hook, Schleiden, Schwann, and Virchow? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
G. Cells—Continued					
2. The structure and function of cells and cell components, including the similarities and differences between plant and animal cells? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 1, p. 17)			X		
3. Cellular homeostasis? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)				X	
4. Cellular respiration? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)		X			
5. Photosynthesis? (*Science Framework Addendum*, p. 24; *Standards*, Number 11, p. S-9; *Statement*, Number 14, p. 18)		X			

6. Levels of organization, cells to systems? (*Standards*, Number 2, p. S-4; *Statement*, Number 3, p. 18)				X	
___ Factual inaccuracies, if any, in the preceding section					
H. Viruses To what extent does the textbook include discussions about: 1. The taxonomy of viruses; e.g., rhinoviruses, herpes simplex, and retroviruses? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)					X
2. A historical perspective; e.g., tobacco mosaic virus, polio, Jenner, or Pasteur? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
3. The viral structures and their functions? (*Science Framework Addendum*, p. 27; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)				X	
4. Reproduction; e.g., invasion? (*Science Framework Addendum*, p. 27; *Statement*, Number 5, p. 18)				X	
5. STIS issues: nature of viral diseases and their social and economic impact; e.g., AIDS, influenza, and German measles? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					
I. Monera To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of monera? (*Science Framework Addendum*, pp. 15, 18; *Statement*, Number 10, p. 19)			X		
2. A historical perspective; e.g., Pasteur or Koch? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		
3. The distinguishing structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
I. Monera—Continued					
4. Reproduction? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		
5. Diseases caused by monera; e.g., strep throat, urinary tract infections, and STDs? (*Science Framework Addendum*, p. 27)			X		
6. Interrelationships with other living things and the environment; e.g., nitrogen fixation and decomposition? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)			X		
7. STIS issues; e.g., food production, waste disposal, pollution, and genetic engineering? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					

J. Protists To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of protists? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		
2. Protists' structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		
3. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		
4. Diseases caused by protists; e.g., gingivitis, dysentery, and malaria? (*Science Framework Addendum*, p. 27; *Statement*, Number 10, p. 19)			X		
5. Interrelationships with other living things and the environment; e.g., symbiosis? (*Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)			X		
6. STIS issues; e.g., food sanitation, industrial products, waste disposal, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					
K. Fungi To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of fungi? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)			X		
2. A historical perspective; e.g., Fleming? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)					X
3. The fungal structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		
4. Growth and development? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		

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I. BIOLOGY: CONTENT (STUDENT'S EDITION)—Continued

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
K. Fungi—Continued					
5. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		
6. Diseases caused by fungi; e.g., ringworm, yeast infection, athlete's foot, smuts, and rusts? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)			X		
7. Interrelationships with other living things and the environment; e.g., decomposition, symbiosis (lichen), and mycorrhiza? (*Standards*, Number 10, p. S-8; *Statement*, Number 10, p. 19)			X		
8. STIS issues; e.g., food (toxic mushrooms), beverages, antibiotics, and fungicides? (*Science Framework Addendum*, p. 26; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		

___ Factual inaccuracies, if any, in the preceding section					
L. Plants					
To what extent does the textbook include discussions about:					
1. The evolution, the phylogeny, and taxonomy of plants? (*Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)			X		
2. Plant structures and their functions; e.g., photosynthesis, food storage, and transport? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8, and Number 11, p. S-9; *Statement*, Number 10, p. 19)		X			
3. Adaptations for land existence? (*Science Framework Addendum*, pp. 18, 22, 24; *Statement*, p. 16, Number 10, p. 19)			X		
4. Growth and development, including the role of hormones? (*Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)			X		
5. Propagation and reproduction, including role of pollinators? (*Science Framework Addendum*, p. 25; *Statement*, Number 5, p. 18)		X			
6. Response to stimuli? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8)			X		
7. Health and disease states of plants; e.g., nutrient deficiencies and parasites? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)			X		
8. STIS issues; e.g., horticulture and environmental concerns, timber harvest, defolients, and endangered species? (*Science Framework Addendum*, p. 25; *Standards*, Number 10, p. S-8, Number 16, p. S-11, and Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					
M. Animals					
To what extent does the textbook include discussions about:					
1. The taxonomic diversity of animals? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)	X				

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
M. Animals—Continued					
2. Invertebrates To what extent does the textbook include discussions about:					
a. Invertebrate structures and their functions; e.g., systems, symmetry? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)		X			
b. Evolutionary relationships and fossil histories? (*Standards*, Number 15, p. S-11; *Statement*, p. 16, and Number 9, p. 19)				X	
c. Adaptations; e.g., for feeding and locomotion? (*Standards*, Number 15, p. S-11)		X			
d. Growth, development, and embryology? (*Science Framework Addendum*, pp. 30–31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)		X			

e. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 30; *Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18, and Number 9, p. 19)			X		
f. Behavior; e.g., innate versus learned, social behaviors, communication, and reproductive behaviors? (*Standards*, Number 5, p. S-6)		X			
g. Health and diseases; e.g., vectors and parasitism? (*Science Framework Addendum*, p. 25; *Statement*, Number 13, p. 20)			X		
h. STIS issues; e.g., agriculture, food, pests, pest control, and aquaculture? (*Standards*, Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 19)			X		
3. Chordates (nonhuman) To what extent does the textbook include discussions about: a. Chordate structures and their functions; e.g., comparative anatomy and physiology and classical chordate characteristics? (*Science Framework Addendum*, pp. 28, 30; *Standards*, Number 7, p. S-7, and Number 9, p. S-8; *Statement*, Number 9, p. 19)		X			
b. Evolutionary relationships and fossil histories? (*Science Framework Addendum*, pp. 15, 18; *Statement*, p. 16, and Number 9, p. 19)			X		
c. Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, p. 30)		X			
d. Growth, development, and embryology? (*Science Framework Addendum*, p. 31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)		X			
e. Reproduction? (*Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18)		X			
f. Behavior; e.g., innate versus learned, social behaviors, or communications? (*Standards*, Number 5, p. S-6; *Statement*, Number 9, p. 19)		X			
g. STIS issues; e.g., wildlife management, live animals used in research, veterinary medicine, and endangered species? (*Science Framework Addendum*, p. 13; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 20)		X			

I. BIOLOGY: CONTENT (STUDENT'S EDITION)—Continued

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
M. Animals—Continued 4. Vertebrates (Human) To what extent does the textbook include discussions about: a. Structure, function, and maintenance of major body systems: (1) Nervous system and sense organs?		X			
(2) Circulatory system?		X			
(3) Digestive system?			X		
(4) Respiratory system?			X		
(5) Reproductive system?			X		

(6)	Musculoskeletal system?			X		
(7)	Excretory system?			X		
(8)	Integumentary system?				X	
(9)	The endocrine system? (*Science Framework Addendum*, p. 33; *Standards*, Number 7, p. S-7; *Statement*, Number 9, p. 19, and Number 12, p. 20)		X			
b.	Evolutionary relationships and fossil histories? (*Science Framework Addendum*, p. 35; *Statement*, p. 16, and Number 9, p. 19)			X		
c.	Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, pp. 32, 33, 35, 37)		X			
d.	Growth, development, and embryology? (*Science Framework Addendum*, p. 34; *Standards*, Number 7 and Number 8, p. S-7; *Statement*, Number 12, p. 20)			X		
e.	Behavior; e.g., innate versus learned, social behaviors, and communication? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 5 and Number 6, p. S-6; *Statement*, Number 12, p. 20)			X		
f.	Health, diseases, and immunity; e.g., genetic, communicable, degenerative, cancer, diagnostic instruments, and STDs? (*Science Framework Addendum*, p. 35; *Standards*, Number 17, p. S-12)	X				
g.	Interrelationships with other living things and the environment; e.g., domestication of plants and animals or habitat destruction? (*Standards*, Number 4, p. S-5; *Statement*, Number 11, p. 19)		X			
h.	STIS issues; e.g., substance abuse? (*Science Framework Addendum*, p. 35)			X		
i.	STIS issues; e.g., genetic counseling, population and demography, environmental issues, euthanasia, and life support systems? (*Science Framework Addendum*, pp. 12–13, 31, 37; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 13 and Number 16, p. 20)	X				
____	Factual inaccuracies, if any, in the preceding section					

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II. BIOLOGY: PROCESS SKILLS (STUDENT'S EDITION)

DESCRIPTIONS OF PROCESSES*

OBSERVING

- Seeing
- Hearing
- Feeling
- Tasting
- Smelling

The main route to knowledge is through observing, using all the senses. This process is a distinct one by which people come to know about the characteristics of objects and their interactions.

COMMUNICATING

- Silent
- Oral
- Written
- Pictorial

Objects are named and events are described by people so that they can tell others about them. Communicating is a fundamental human process that enables one to learn more about a greater range of information than could be learned without this process.

COMPARING

- Sensory comparisons
- Relative positive comparisons
- Linear comparisons
- Weight comparisons
- Capacity comparisons
- Quantity comparisons

Comparing is a distinct process by which people systematically examine objects and events in terms of similarities and differences. By comparing the known to something unknown, one gains knowledge about the unknown. All measurements are forms of comparing.

ORGANIZING

- Data gathering
- Sequencing
- Grouping
- Classifying

Knowledge of principles and laws is gained only through the systematic compiling, classifying, and ordering of observed and compared data. Bodies of knowledge grow from long-term organizing processes.

RELATING

- Using space-time relationships
- Formulating experimental hypotheses
- Controlling and manipulating variables
- Experimenting

Relating is a process by which concrete and abstract ideas are woven together to test or explain phenomena. Hypothetical-deductive reasoning, coordinate graphing, the managing of variables, and the comparison of effects of one variable on another contribute to the attainment of the major concepts of science.

INFERRING

- Synthesizing, analyzing
- Generalizing
- Recognizing and predicting patterns; stating laws
- Formulating explanatory models and theorizing

The process of realizing ideas that are *not* directly observable is the process of inferring. The process leads to predictive explanations for simple and complex phenomena.

APPLYING

- Using knowledge to solve problems
- Inventing (technology)

Use of knowledge is the applying of knowledge. Inventing, creating, problem solving, and determining probabilities are ways of using information that lead to gaining further information.

**Science Framework Addendum*, pp. 4–5.

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REVIEW OF PROCESS SKILLS[1]

To what extent are the following process skills taught throughout the textbook:	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
1. Observing?	X				
2. Communicating?	X				
3. Comparing?		X			
4. Organizing?			X		
5. Relating?			X		
6. Inferring?			X		
7. Applying?				X	

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[1] *Science Framework Addendum*, p. 5.

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III. BIOLOGY: TEACHER'S EDITION

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the textbook include:				
1. Alternative strategies for organizing the course? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2 and Number 4)	X			
2. A range of suggested instructional activities? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 3)	X			
3. Material that engages students in using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)	X			
4. Varied activities to meet instructional needs of students with different learning styles and interests? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 1)		X		

5. Consideration of the instructional needs of limited-English-proficient students? (*Science Framework Addendum*, p. 103, "General Criteria")				X
6. Identification of process skills related to specific activities? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6 and Number 7)		X		
7. Instructional activities that integrate knowledge and skills learned in other disciplines; e.g., mathematics or history? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		
8. Suggestions for structuring group instruction; e.g., cooperative learning? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2)				X
9. A listing of additional resources for extended and in-depth supplemental activities? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 3)	X			
10. A variety of assessment techniques; e.g., number and types of questions such as essay, definitions, and discussion? (*Science Framework Addendum*, p. 104, "Assessment and Evaluation," Number 1 and Number 2)			X	

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IV. BIOLOGY: STUDENT'S LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. To what extent does the student's laboratory manual include:				
1. Experiences that reinforce the major concepts covered in the student's edition? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)	X			
2. Directions for laboratory setup, procedures, and data reporting related to the laboratory experiences? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8)	X			
3. Information that emphasizes safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9)		X		
4. Assignments that integrate knowledge and skills learned in other disciplines; e.g., reading and writing? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)	X			

5. Assignments that guide students toward using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)	X			
6. Information that promotes sensitivity to the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)			X	
B. To what extent are the following process skills taught throughout the laboratory manual:*				
1. Observing?	X			
2. Communicating?	X			
3. Comparing?		X		
4. Organizing?		X		
5. Relating?		X		
6. Inferring?		X		
7. Applying?		X		

**Science Framework Addendum*, p. 5 and p. 104, "Content and Process," Number 7.

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V. BIOLOGY: TEACHER'S EDITION OF THE LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the laboratory manual include:				
1. Information that encourages the shared responsibility for safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9; "Teachers' Materials," Number 9)		X		
2. Opportunities to demonstrate the interrelatedness of scientific information and process skills? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)		X		
3. Material which guides students to use higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
4. Opportunities to integrate knowledge and skills from other disciplines; e.g., writing of laboratory reports? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		

5. Instructional alternatives as appropriate and necessary? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 4)			X	
6. Resource lists for acquiring: a. Equipment?	X			
b. Chemicals?	X			
c. Supplies?	X			
d. Preserved and living specimens? (*Science Framework Addendum*, p. 104, "Teachers' Materials," Number 2)	X			
7. Necessary solutions and recipes? (*Science Framework Addendum*, pp. 104–105, "Teachers' Materials," Number 2)	X			
8. Information on the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)				X
9. List of supplemental materials and resources? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 2f)			X	
10. Information about outdoor biology fieldwork? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 7)			X	

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. What is biology? To what extent does the textbook include discussions about:					
1. The distinguishing characteristics of life; e.g., reproduction and growth? (*Science Framework Addendum*, p. 14)		X			
2. Scientific reasoning; e.g., induction, deduction, observation, fact, hypothesis, theory, and inference? (*Science Framework Addendum*, pp. 8, 12; *Standards*,* p. S-1; *Statement*,† p. 9)	X				
3. Research methods and tools of biologists; e.g., microscopes, centrifuge, and metric measurement? (*Science Framework Addendum*, pp. 23, 26, 27)			X		
4. Science, Technology, Individuals, and Society (STIS) issues; e.g., health, ethical concerns, careers, and economic impact? (*Science Framework Addendum*, p. 13; *Statement*, Number 13 and Number 16, p. 20)	X				

___ Factual inaccuracies, if any, in the preceding section‡					
B. Ecology					
To what extent does the textbook include discussions about:					
1. Diversity and stability in ecosystems? (*Science Framework Addendum,* pp. 41–42)	X				
2. Biotic and abiotic interrelationships; e.g., chains, cycles (such as carbon, nitrogen, and water), and symbiotic relationships? (*Science Framework Addendum,* p. 42; *Standards,* Number 16, p. S-11; *Statement,* Number 4, p. 18)		X			
3. Levels of ecological organization; e.g., communities, biomes, and populations? (*Science Framework Addendum,* pp. 39, 42; *Standards,* Number 4, p. S-5, and Number 16, p. S-11; *Statement,* Number 11, p. 19)	X				
4. The energy flow through the ecosystem; e.g., trophic levels and energy pyramids? (*Science Framework Addendum,* p. 40; *Statement,* Number 4, p. 18, and Number 11, p. 19)		X			
5. The impact of society on the natural environment; e.g., pollution, endangered species, resource depletion, and recycling? (*Science Framework Addendum,* p. 42; *Standards,* Number 16, p. S-11; *Statement,* Number 4, p. 18, and Number 11, p. 20)		X			
___ Factual inaccuracies, if any, in the preceding section					
C. Heredity					
To what extent does the textbook include discussions about:					
1. A historical perspective; e.g., Mendel, Morgan, Sutton, Watson, and Crick? (*Science Framework Addendum,* p. 8; *Standards,* Number 12, p. S-9, and Number 14, p. S-10; *Statement,* p. 12)	X				

NOTE: The secondary biology textbook review instrument is correlated with the following resource documents:

- The *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve* is cited as *Science Framework Addendum.*
- **Model Curriculum Standards: Grades Nine Through Twelve* is cited as *Standards.*
- †The *Statement on Preparation in Natural Science Expected of Entering Freshmen* is cited as *Statement.*

The first two documents are published by the California State Department of Education. The last one listed was issued by the Academic Senates of the California Community Colleges, the California State University, and the University of California in cooperation with the California Round Table on Educational Opportunity. Each publication is available from the California State Department of Education (see pages 403 and 404 for ordering information).

‡See "Factual Inaccuracies" on page xii.

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
C. Heredity—Continued					
2. Scientific tools to model heredity; e.g., probability, statistics, and pedigrees? (*Science Framework Addendum*, p. 20; *Standards*, Number 14, p. S-10)		X			
3. Cell cycle, meiosis, and mitosis? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 5, p. 18)		X			
4. Chromosomes, genes, DNA, and RNA? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)	X				
5. Biochemical aspects of heredity; e.g., transcription, translation, and protein synthesis? (*Science Framework Addendum*, p. 19; *Statement*, Number 7, p. 18)			X		

6. Gene and chromosome mutations; e.g., inversions, insertions, and nonsense codons? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)			X		
7. Human genetic variability; e.g., color blindness, baldness, and blood groups? (*Science Framework Addendum*, p. 17; *Standards*, Number 14, p. S-10; *Statement*, Number 7, p. 18)			X		
8. The influence of heredity on health and disease; e.g., sickle-cell anemia, hemophilia, and Down's syndrome? (*Standards*, Number 12, p. S-9; *Statement*, Number 13, p. 20)		X			
9. STIS issues; e.g., selective breeding and techniques and ethics of genetic engineering? (*Science Framework Addendum*, pp. 19–20; *Statement*, Number 5, p. 18, and Number 13, p. 20)		X			
___ Factual inaccuracies, if any, in the preceding section					
D. Evolution To what extent does the textbook include discussions about:					
1. The genetic basis of evolution; e.g., genes as the source of variation? (*Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)			X		
2. A historical perspective; e.g., works of Lamarck, Wallace, and Darwin? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1, and Number 15, p. S-11; *Statement*, p. 12, and Number 6, p. 18)			X		
3. Scientific evidence; e.g., paleontology, genetics, biochemistry, and comparative anatomy? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 6, p. 18)		X			
4. Fossil evidence for evolution; e.g., skeletons, pollen, dating methods, and sequence of fossil forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)		X			
5. Evolutionary processes and their effects; e.g., selection, drift, adaptation, speciation, and extinction? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11)		X			

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I. BIOLOGY: CONTENT (STUDENT'S EDITION)—Continued

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
D. Evolution—Continued					
6. Scientific theories about the origin of life; e.g., inorganic to organic? (*Science Framework Addendum*, p. 24; *Statement*, Number 6, p. 18)				X	
7. The history of life on earth; e.g., evolution from unicellular to multicellular and more specialized forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)				X	
8. Human evolution; e.g., paleoanthropology and the work on "Lucy"? (*Science Framework Addendum*, p. 35; *Statement*, Number 6, p. 18)		X			
Factual inaccuracies, if any, in the preceding section					

E. Classification To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Aristotle and Linnaeus? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		
2. Evolutionary relationships as the basis of classification? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 8, p. 19)				X	
3. Principles of classification; e.g., hierarchy and binomial nomenclature? (*Standards*, Number 3, p. S-5; *Statement*, Number 8, p. 19)			X		
4. Comparative anatomy, genetic structure (phenotypes), and biochemistry as data sets for classification? (*Science Framework Addendum*, p. 20; *Statement*, Number 8, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					
F. Chemistry To what extent does the textbook include discussions about: 1. Atoms, molecules, chemical bonds, reactions, and the periodic table? (*Science Framework Addendum*, p. 24; *Statement*, Number 2, p. 17)		X			
2. The structure and function of molecules in living things; e.g., proteins, nucleic acids, lipids, and polysaccarides? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 2, p. 17)	X				
3. Energy processes; e.g., laws of thermodynamics, diffusion, osmosis, and enzyme kinetics? (*Science Framework Addendum*, p. 19)		X			
___ Factual inaccuracies, if any, in the preceding section					
G. Cells To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Hook, Schleiden, Schwann, and Virchow? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		

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G. Cells—Continued					
2. The structure and function of cells and cell components, including the similarities and differences between plant and animal cells? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 1, p. 17)	X				
3. Cellular homeostasis? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)		X			
4. Cellular respiration? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)		X			
5. Photosynthesis? (*Science Framework Addendum*, p. 24; *Standards*, Number 11, p. S-9; *Statement*, Number 14, p. 18)			X		

6. Levels of organization, cells to systems? (*Standards*, Number 2, p. S-4; *Statement*, Number 3, p. 18)			X		
___ Factual inaccuracies, if any, in the preceding section					
H. Viruses To what extent does the textbook include discussions about: 1. The taxonomy of viruses; e.g., rhinoviruses, herpes simplex, and retroviruses? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)			X		
2. A historical perspective; e.g., tobacco mosaic virus, polio, Jenner, or Pasteur? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		
3. The viral structures and their functions? (*Science Framework Addendum*, p. 27; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)		X			
4. Reproduction; e.g., invasion? (*Science Framework Addendum*, p. 27; *Statement*, Number 5, p. 18)			X		
5. STIS issues: nature of viral diseases and their social and economic impact; e.g., AIDS, influenza, and German measles? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)		X			
___ Factual inaccuracies, if any, in the preceding section					
I. Monera To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of monera? (*Science Framework Addendum*, pp. 15, 18; *Statement*, Number 10, p. 19)			X		
2. A historical perspective; e.g., Pasteur or Koch? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
3. The distinguishing structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)		X			

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I. Monera—Continued					
4. Reproduction? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		
5. Diseases caused by monera; e.g., strep throat, urinary tract infections, and STDs? (*Science Framework Addendum*, p. 27)			X		
6. Interrelationships with other living things and the environment; e.g., nitrogen fixation and decomposition? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)			X		
7. STIS issues; e.g., food production, waste disposal, pollution, and genetic engineering? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		
— Factual inaccuracies, if any, in the preceding section					

J. Protists To what extent does the textbook include discussions about:					
1. The evolution, the phylogeny, and taxonomy of protists? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		
2. Protists' structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)		X			
3. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)		X			
4. Diseases caused by protists; e.g., gingivitis, dysentery, and malaria? (*Science Framework Addendum*, p. 27; *Statement*, Number 10, p. 19)			X		
5. Interrelationships with other living things and the environment; e.g., symbiosis? (*Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)				X	
6. STIS issues; e.g., food sanitation, industrial products, waste disposal, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 10, p. 19)					X
___ Factual inaccuracies, if any, in the preceding section					
K. Fungi To what extent does the textbook include discussions about:					
1. The evolution, the phylogeny, and taxonomy of fungi? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)				X	
2. A historical perspective; e.g., Fleming? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
3. The fungal structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		
4. Growth and development? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		

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K. Fungi—Continued					
5. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)		X			
6. Diseases caused by fungi; e.g., ringworm, yeast infection, athlete's foot, smuts, and rusts? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)			X		
7. Interrelationships with other living things and the environment; e.g., decomposition, symbiosis (lichen), and mycorrhiza? (*Standards*, Number 10, p. S-8; *Statement*, Number 10, p. 19)				X	
8. STIS issues; e.g., food (toxic mushrooms), beverages, antibiotics, and fungicides? (*Science Framework Addendum*, p. 26; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		

___ Factual inaccuracies, if any, in the preceding section					
L. Plants To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of plants? (*Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)		X			
2. Plant structures and their functions; e.g., photosynthesis, food storage, and transport? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8, and Number 11, p. S-9; *Statement*, Number 10, p. 19)	X				
3. Adaptations for land existence? (*Science Framework Addendum*, pp. 18, 22, 24; *Statement*, p. 16, Number 10, p. 19)				X	
4. Growth and development, including the role of hormones? (*Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)		X			
5. Propagation and reproduction, including role of pollinators? (*Science Framework Addendum*, p. 25; *Statement*, Number 5, p. 18)		X			
6. Response to stimuli? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8)		X			
7. Health and disease states of plants; e.g., nutrient deficiencies and parasites? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)			X		
8. STIS issues; e.g., horticulture and environmental concerns, timber harvest, defolients, and endangered species? (*Science Framework Addendum*, p. 25; *Standards*, Number 10, p. S-8, Number 16, p. S-11, and Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					
M. Animals To what extent does the textbook include discussions about: 1. The taxonomic diversity of animals? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)	X				

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
M. Animals—Continued					
2. Invertebrates					
To what extent does the textbook include discussions about:					
a. Invertebrate structures and their functions; e.g., systems, symmetry? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)	X				
b. Evolutionary relationships and fossil histories? (*Standards*, Number 15, p. S-11; *Statement*, p. 16, and Number 9, p. 19)			X		
c. Adaptations; e.g., for feeding and locomotion? (*Standards*, Number 15, p. S-11)	X				
d. Growth, development, and embryology? (*Science Framework Addendum*, pp. 30–31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)	X				

e. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 30; *Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18, and Number 9, p. 19)	X				
f. Behavior; e.g., innate versus learned, social behaviors, communication, and reproductive behaviors? (*Standards*, Number 5, p. S-6)			X		
g. Health and diseases; e.g., vectors and parasitism? (*Science Framework Addendum*, p. 25; *Statement*, Number 13, p. 20)			X		
h. STIS issues; e.g., agriculture, food, pests, pest control, and aquaculture? (*Standards*, Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 19)			X		
3. Chordates (nonhuman) To what extent does the textbook include discussions about: a. Chordate structures and their functions; e.g., comparative anatomy and physiology and classical chordate characteristics? (*Science Framework Addendum*, pp. 28, 30; *Standards*, Number 7, p. S-7, and Number 9, p. S-8; *Statement*, Number 9, p. 19)	X				
b. Evolutionary relationships and fossil histories? (*Science Framework Addendum*, pp. 15, 18; *Statement*, p. 16, and Number 9, p. 19)		X			
c. Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, p. 30)	X				
d. Growth, development, and embryology? (*Science Framework Addendum*, p. 31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)	X				
e. Reproduction? (*Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18)	X				
f. Behavior; e.g., innate versus learned, social behaviors, or communications? (*Standards*, Number 5, p. S-6; *Statement*, Number 9, p. 19)			X		
g. STIS issues; e.g., wildlife management, live animals used in research, veterinary medicine, and endangered species? (*Science Framework Addendum*, p. 13; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 20)	X				

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M. Animals—Continued					
4. Vertebrates (Human) To what extent does the textbook include discussions about: a. Structure, function, and maintenance of major body systems: (1) Nervous system and sense organs?		X			
(2) Circulatory system?		X			
(3) Digestive system?		X			
(4) Respiratory system?		X			
(5) Reproductive system?		X			

	(6) Musculoskeletal system?		X			
	(7) Excretory system?		X			
	(8) Integumentary system?			X		
	(9) The endocrine system? (*Science Framework Addendum*, p. 33; *Standards*, Number 7, p. S-7; *Statement*, Number 9, p. 19, and Number 12, p. 20)			X		
b.	Evolutionary relationships and fossil histories? (*Science Framework Addendum*, p. 35; *Statement*, p. 16, and Number 9, p. 19)		X			
c.	Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, pp. 32, 33, 35, 37)			X		
d.	Growth, development, and embryology? (*Science Framework Addendum*, p. 34; *Standards*, Number 7 and Number 8, p. S-7; *Statement*, Number 12, p. 20)		X			
e.	Behavior; e.g., innate versus learned, social behaviors, and communication? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 5 and Number 6, p. S-6; *Statement*, Number 12, p. 20)		X			
f.	Health, diseases, and immunity; e.g., genetic, communicable, degenerative, cancer, diagnostic instruments, and STDs? (*Science Framework Addendum*, p. 35; *Standards*, Number 17, p. S-12)			X		
g.	Interrelationships with other living things and the environment; e.g., domestication of plants and animals or habitat destruction? (*Standards*, Number 4, p. S-5; *Statement*, Number 11, p. 19)		X			
h.	STIS issues; e.g., substance abuse? (*Science Framework Addendum*, p. 35)			X		
i.	STIS issues; e.g., genetic counseling, population and demography, environmental issues, euthanasia, and life support systems? (*Science Framework Addendum*, pp. 12–13, 31, 37; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 13 and Number 16, p. 20)			X		
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II. BIOLOGY: PROCESS SKILLS (STUDENT'S EDITION)

DESCRIPTIONS OF PROCESSES*

OBSERVING

- Seeing
- Hearing
- Feeling
- Tasting
- Smelling

The main route to knowledge is through observing, using all the senses. This process is a distinct one by which people come to know about the characteristics of objects and their interactions.

COMMUNICATING

- Silent
- Oral
- Written
- Pictorial

Objects are named and events are described by people so that they can tell others about them. Communicating is a fundamental human process that enables one to learn more about a greater range of information than could be learned without this process.

COMPARING

- Sensory comparisons
- Relative positive comparisons
- Linear comparisons
- Weight comparisons
- Capacity comparisons
- Quantity comparisons

Comparing is a distinct process by which people systematically examine objects and events in terms of similarities and differences. By comparing the known to something unknown, one gains knowledge about the unknown. All measurements are forms of comparing.

ORGANIZING

- Data gathering
- Sequencing
- Grouping
- Classifying

Knowledge of principles and laws is gained only through the systematic compiling, classifying, and ordering of observed and compared data. Bodies of knowledge grow from long-term organizing processes.

RELATING

- Using space-time relationships
- Formulating experimental hypotheses
- Controlling and manipulating variables
- Experimenting

Relating is a process by which concrete and abstract ideas are woven together to test or explain phenomena. Hypothetical-deductive reasoning, coordinate graphing, the managing of variables, and the comparison of effects of one variable on another contribute to the attainment of the major concepts of science.

INFERRING

- Synthesizing, analyzing
- Generalizing
- Recognizing and predicting patterns; stating laws
- Formulating explanatory models and theorizing

The process of realizing ideas that are *not* directly observable is the process of inferring. The process leads to predictive explanations for simple and complex phenomena.

APPLYING

- Using knowledge to solve problems
- Inventing (technology)

Use of knowledge is the applying of knowledge. Inventing, creating, problem solving, and determining probabilities are ways of using information that lead to gaining further information.

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[*] *Science Framework Addendum*, pp. 4–5.

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REVIEW OF PROCESS SKILLS[†]

To what extent are the following process skills taught throughout the textbook:	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
1. Observing?	X				
2. Communicating?	X				
3. Comparing?		X			
4. Organizing?		X			
5. Relating?			X		
6. Inferring?			X		
7. Applying?			X		

[†] *Science Framework Addendum*, p. 5.

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III. BIOLOGY: TEACHER'S EDITION

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the textbook include: 1. Alternative strategies for organizing the course? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2 and Number 4)		X		
2. A range of suggested instructional activities? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 3)	X			
3. Material that engages students in using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
4. Varied activities to meet instructional needs of students with different learning styles and interests? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 1)		X		

5. Consideration of the instructional needs of limited-English-proficient students? (*Science Framework Addendum*, p. 103, "General Criteria")				X
6. Identification of process skills related to specific activities? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6 and Number 7)			X	
7. Instructional activities that integrate knowledge and skills learned in other disciplines; e.g., mathematics or history? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		
8. Suggestions for structuring group instruction; e.g., cooperative learning? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2)				X
9. A listing of additional resources for extended and in-depth supplemental activities? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 3)		X		
10. A variety of assessment techniques; e.g., number and types of questions such as essay, definitions, and discussion? (*Science Framework Addendum*, p. 104, "Assessment and Evaluation," Number 1 and Number 2)	X			

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IV. BIOLOGY: STUDENT'S LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. To what extent does the student's laboratory manual include:				
1. Experiences that reinforce the major concepts covered in the student's edition? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)	X			
2. Directions for laboratory setup, procedures, and data reporting related to the laboratory experiences? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8)	X			
3. Information that emphasizes safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9)	X			
4. Assignments that integrate knowledge and skills learned in other disciplines; e.g., reading and writing? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		

5. Assignments that guide students toward using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)			X	
6. Information that promotes sensitivity to the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)				X
B. To what extent are the following process skills taught throughout the laboratory manual:* 1. Observing?	X			
2. Communicating?	X			
3. Comparing?	X			
4. Organizing?		X		
5. Relating?		X		
6. Inferring?		X		
7. Applying?			X	

**Science Framework Addendum*, p. 5 and p. 104, "Content and Process," Number 7.

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the laboratory manual include:				
1. Information that encourages the shared responsibility for safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9; "Teachers' Materials," Number 9)	X			
2. Opportunities to demonstrate the interrelatedness of scientific information and process skills? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)			X	
3. Material which guides students to use higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)			X	
4. Opportunities to integrate knowledge and skills from other disciplines; e.g., writing of laboratory reports? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		

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5. Instructional alternatives as appropriate and necessary? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 4)		X		
6. Resource lists for acquiring: a. Equipment?	X			
b. Chemicals?	X			
c. Supplies?	X			
d. Preserved and living specimens? (*Science Framework Addendum*, p. 104, "Teachers' Materials," Number 2)	X			
7. Necessary solutions and recipes? (*Science Framework Addendum*, pp. 104–105, "Teachers' Materials," Number 2)	X			
8. Information on the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)	X			
9. List of supplemental materials and resources? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 2f)				X
10. Information about outdoor biology fieldwork? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 7)				X

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I. BIOLOGY: CONTENT (STUDENT'S EDITION)

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. **What is biology?** To what extent does the textbook include discussions about:					
1. The distinguishing characteristics of life; e.g., reproduction and growth? (*Science Framework Addendum*, p. 14)			X		
2. Scientific reasoning; e.g., induction, deduction, observation, fact, hypothesis, theory, and inference? (*Science Framework Addendum*, pp. 8, 12; *Standards*,* p. S-1; *Statement*,† p. 9)			X		
3. Research methods and tools of biologists; e.g., microscopes, centrifuge, and metric measurement? (*Science Framework Addendum*, pp. 23, 26, 27)		X			
4. Science, Technology, Individuals, and Society (STIS) issues; e.g., health, ethical concerns, careers, and economic impact? (*Science Framework Addendum*, p. 13; *Statement*, Number 13 and Number 16, p. 20)		X			

___ Factual inaccuracies, if any, in the preceding section[‡]					
B. Ecology To what extent does the textbook include discussions about: 1. Diversity and stability in ecosystems? (*Science Framework Addendum*, pp. 41–42)			X		
2. Biotic and abiotic interrelationships; e.g., chains, cycles (such as carbon, nitrogen, and water), and symbiotic relationships? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11; *Statement*, Number 4, p. 18)		X			
3. Levels of ecological organization; e.g., communities, biomes, and populations? (*Science Framework Addendum*, pp. 39, 42; *Standards*, Number 4, p. S-5, and Number 16, p. S-11; *Statement*, Number 11, p. 19)		X			
4. The energy flow through the ecosystem; e.g., trophic levels and energy pyramids? (*Science Framework Addendum*, p. 40; *Statement*, Number 4, p. 18, and Number 11, p. 19)			X		
5. The impact of society on the natural environment; e.g., pollution, endangered species, resource depletion, and recycling? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11; *Statement*, Number 4, p. 18, and Number 11, p. 20)		X			
___ Factual inaccuracies, if any, in the preceding section					
C. Heredity To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Mendel, Morgan, Sutton, Watson, and Crick? (*Science Framework Addendum*, p. 8; *Standards*, Number 12, p. S-9, and Number 14, p. S-10; *Statement*, p. 12)		X			

NOTE: The secondary biology textbook review instrument is correlated with the following resource documents:

- The *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve* is cited as *Science Framework Addendum.*
- [*]*Model Curriculum Standards: Grades Nine Through Twelve* is cited as *Standards.*
- [†]The *Statement on Preparation in Natural Science Expected of Entering Freshmen* is cited as *Statement.*

The first two documents are published by the California State Department of Education. The last one listed was issued by the Academic Senates of the California Community Colleges, the California State University, and the University of California in cooperation with the California Round Table on Educational Opportunity. Each publication is available from the California State Department of Education (see pages 403 and 404 for ordering information).

[‡]See "Factual Inaccuracies" on page xii.

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C. Heredity—Continued					
2. Scientific tools to model heredity; e.g., probability, statistics, and pedigrees? (*Science Framework Addendum*, p. 20; *Standards*, Number 14, p. S-10)			X		
3. Cell cycle, meiosis, and mitosis? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 5, p. 18)		X			
4. Chromosomes, genes, DNA, and RNA? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)		X			
5. Biochemical aspects of heredity; e.g., transcription, translation, and protein synthesis? (*Science Framework Addendum*, p. 19; *Statement*, Number 7, p. 18)			X		

6. Gene and chromosome mutations; e.g., inversions, insertions, and nonsense codons? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)			X		
7. Human genetic variability; e.g., color blindness, baldness, and blood groups? (*Science Framework Addendum*, p. 17; *Standards*, Number 14, p. S-10; *Statement*, Number 7, p. 18)			X		
8. The influence of heredity on health and disease; e.g., sickle-cell anemia, hemophilia, and Down's syndrome? (*Standards*, Number 12, p. S-9; *Statement*, Number 13, p. 20)			X		
9. STIS issues; e.g., selective breeding and techniques and ethics of genetic engineering? (*Science Framework Addendum*, pp. 19–20; *Statement*, Number 5, p. 18, and Number 13, p. 20)			X		
__ Factual inaccuracies, if any, in the preceding section					
D. Evolution To what extent does the textbook include discussions about:					
1. The genetic basis of evolution; e.g., genes as the source of variation? (*Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)			X		
2. A historical perspective; e.g., works of Lamarck, Wallace, and Darwin? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1, and Number 15, p. S-11; *Statement*, p. 12, and Number 6, p. 18)			X		
3. Scientific evidence; e.g., paleontology, genetics, biochemistry, and comparative anatomy? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 6, p. 18)			X		
4. Fossil evidence for evolution; e.g., skeletons, pollen, dating methods, and sequence of fossil forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)			X		
5. Evolutionary processes and their effects; e.g., selection, drift, adaptation, speciation, and extinction? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11)		X			

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D. Evolution—Continued					
6. Scientific theories about the origin of life; e.g., inorganic to organic? (*Science Framework Addendum*, p. 24; *Statement*, Number 6, p. 18)			X		
7. The history of life on earth; e.g., evolution from unicellular to multicellular and more specialized forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)			X		
8. Human evolution; e.g., paleoanthropology and the work on "Lucy"? (*Science Framework Addendum*, p. 35; *Statement*, Number 6, p. 18)			X		
__ Factual inaccuracies, if any, in the preceding section					

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E. Classification To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Aristotle and Linnaeus? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		
2. Evolutionary relationships as the basis of classification? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 8, p. 19)			X		
3. Principles of classification; e.g., hierarchy and binomial nomenclature? (*Standards*, Number 3, p. S-5; *Statement*, Number 8, p. 19)			X		
4. Comparative anatomy, genetic structure (phenotypes), and biochemistry as data sets for classification? (*Science Framework Addendum*, p. 20; *Statement*, Number 8, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					
F. Chemistry To what extent does the textbook include discussions about: 1. Atoms, molecules, chemical bonds, reactions, and the periodic table? (*Science Framework Addendum*, p. 24; *Statement*, Number 2, p. 17)		X			
2. The structure and function of molecules in living things; e.g., proteins, nucleic acids, lipids, and polysaccarides? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 2, p. 17)		X			
3. Energy processes; e.g., laws of thermodynamics, diffusion, osmosis, and enzyme kinetics? (*Science Framework Addendum*, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					
G. Cells To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Hook, Schleiden, Schwann, and Virchow? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		

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G. Cells—Continued					
2. The structure and function of cells and cell components, including the similarities and differences between plant and animal cells? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 1, p. 17)		X			
3. Cellular homeostasis? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)			X		
4. Cellular respiration? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)			X		
5. Photosynthesis? (*Science Framework Addendum*, p. 24; *Standards*, Number 11, p. S-9; *Statement*, Number 14, p. 18)			X		

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6. Levels of organization, cells to systems? (*Standards*, Number 2, p. S-4; *Statement*, Number 3, p. 18)				X	
___ Factual inaccuracies, if any, in the preceding section					
H. Viruses To what extent does the textbook include discussions about: 1. The taxonomy of viruses; e.g., rhinoviruses, herpes simplex, and retroviruses? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)			X		
2. A historical perspective; e.g., tobacco mosaic virus, polio, Jenner, or Pasteur? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
3. The viral structures and their functions? (*Science Framework Addendum*, p. 27; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)			X		
4. Reproduction; e.g., invasion? (*Science Framework Addendum*, p. 27; *Statement*, Number 5, p. 18)			X		
5. STIS issues: nature of viral diseases and their social and economic impact; e.g., AIDS, influenza, and German measles? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					
I. Monera To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of monera? (*Science Framework Addendum*, pp. 15, 18; *Statement*, Number 10, p. 19)			X		
2. A historical perspective; e.g., Pasteur or Koch? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		
3. The distinguishing structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		

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I. Monera—Continued					
4. Reproduction? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		
5. Diseases caused by monera; e.g., strep throat, urinary tract infections, and STDs? (*Science Framework Addendum*, p. 27)			X		
6. Interrelationships with other living things and the environment; e.g., nitrogen fixation and decomposition? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)			X		
7. STIS issues; e.g., food production, waste disposal, pollution, and genetic engineering? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					

J. Protists To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of protists? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)	X				
2. Protists' structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)		X			
3. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)		X			
4. Diseases caused by protists; e.g., gingivitis, dysentery, and malaria? (*Science Framework Addendum*, p. 27; *Statement*, Number 10, p. 19)		X			
5. Interrelationships with other living things and the environment; e.g., symbiosis? (*Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)			X		
6. STIS issues; e.g., food sanitation, industrial products, waste disposal, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 10, p. 19)				X	
___ Factual inaccuracies, if any, in the preceding section					
K. Fungi To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of fungi? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)		X			
2. A historical perspective; e.g., Fleming? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		
3. The fungal structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)		X			
4. Growth and development? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		

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K. Fungi—Continued					
5. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)		X			
6. Diseases caused by fungi; e.g., ringworm, yeast infection, athlete's foot, smuts, and rusts? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)			X		
7. Interrelationships with other living things and the environment; e.g., decomposition, symbiosis (lichen), and mycorrhiza? (*Standards*, Number 10, p. S-8; *Statement*, Number 10, p. 19)			X		
8. STIS issues; e.g., food (toxic mushrooms), beverages, antibiotics, and fungicides? (*Science Framework Addendum*, p. 26; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		

___ Factual inaccuracies, if any, in the preceding section					
L. Plants					
To what extent does the textbook include discussions about:					
1. The evolution, the phylogeny, and taxonomy of plants? (*Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)		X			
2. Plant structures and their functions; e.g., photosynthesis, food storage, and transport? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8, and Number 11, p. S-9; *Statement*, Number 10, p. 19)	X				
3. Adaptations for land existence? (*Science Framework Addendum*, pp. 18, 22, 24; *Statement*, p. 16, Number 10, p. 19)			X		
4. Growth and development, including the role of hormones? (*Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)		X			
5. Propagation and reproduction, including role of pollinators? (*Science Framework Addendum*, p. 25; *Statement*, Number 5, p. 18)		X			
6. Response to stimuli? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8)			X		
7. Health and disease states of plants; e.g., nutrient deficiencies and parasites? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)			X		
8. STIS issues; e.g., horticulture and environmental concerns, timber harvest, defolients, and endangered species? (*Science Framework Addendum*, p. 25; *Standards*, Number 10, p. S-8, Number 16, p. S-11, and Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					
M. Animals					
To what extent does the textbook include discussions about:					
1. The taxonomic diversity of animals? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)	X				

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M. Animals—Continued 2. Invertebrates To what extent does the textbook include discussions about: a. Invertebrate structures and their functions; e.g., systems, symmetry? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)		X			
b. Evolutionary relationships and fossil histories? (*Standards*, Number 15, p. S-11; *Statement*, p. 16, and Number 9, p. 19)			X		
c. Adaptations; e.g., for feeding and locomotion? (*Standards*, Number 15, p. S-11)	X				
d. Growth, development, and embryology? (*Science Framework Addendum*, pp. 30–31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)			X		

e. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 30; *Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18, and Number 9, p. 19)	X				
f. Behavior; e.g., innate versus learned, social behaviors, communication, and reproductive behaviors? (*Standards*, Number 5, p. S-6)			X		
g. Health and diseases; e.g., vectors and parasitism? (*Science Framework Addendum*, p. 25; *Statement*, Number 13, p. 20)		X			
h. STIS issues; e.g., agriculture, food, pests, pest control, and aquaculture? (*Standards*, Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 19)			X		
3. Chordates (nonhuman) To what extent does the textbook include discussions about: a. Chordate structures and their functions; e.g., comparative anatomy and physiology and classical chordate characteristics? (*Science Framework Addendum*, pp. 28, 30; *Standards*, Number 7, p. S-7, and Number 9, p. S-8; *Statement*, Number 9, p. 19)	X				
b. Evolutionary relationships and fossil histories? (*Science Framework Addendum*, pp. 15, 18; *Statement*, p. 16, and Number 9, p. 19)			X		
c. Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, p. 30)	X				
d. Growth, development, and embryology? (*Science Framework Addendum*, p. 31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)			X		
e. Reproduction? (*Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18)	X				
f. Behavior; e.g., innate versus learned, social behaviors, or communications? (*Standards*, Number 5, p. S-6; *Statement*, Number 9, p. 19)		X			
g. STIS issues; e.g., wildlife management, live animals used in research, veterinary medicine, and endangered species? (*Science Framework Addendum*, p. 13; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 20)			X		

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M. Animals—Continued					
4. Vertebrates (Human)					
To what extent does the textbook include discussions about:					
a. Structure, function, and maintenance of major body systems:					
(1) Nervous system and sense organs?		X			
(2) Circulatory system?		X			
(3) Digestive system?		X			
(4) Respiratory system?		X			
(5) Reproductive system?		X			

(6) Musculoskeletal system?		X			
(7) Excretory system?			X		
(8) Integumentary system?			X		
(9) The endocrine system? (*Science Framework Addendum*, p. 33; *Standards*, Number 7, p. S-7; *Statement*, Number 9, p. 19, and Number 12, p. 20)		X			
b. Evolutionary relationships and fossil histories? (*Science Framework Addendum*, p. 35; *Statement*, p. 16, and Number 9, p. 19)			X		
c. Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, pp. 32, 33, 35, 37)				X	
d. Growth, development, and embryology? (*Science Framework Addendum*, p. 34; *Standards*, Number 7 and Number 8, p. S-7; *Statement*, Number 12, p. 20)		X			
e. Behavior; e.g., innate versus learned, social behaviors, and communication? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 5 and Number 6, p. S-6; *Statement*, Number 12, p. 20)					X
f. Health, diseases, and immunity; e.g., genetic, communicable, degenerative, cancer, diagnostic instruments, and STDs? (*Science Framework Addendum*, p. 35; *Standards*, Number 17, p. S-12)	X				
g. Interrelationships with other living things and the environment; e.g., domestication of plants and animals or habitat destruction? (*Standards*, Number 4, p. S-5; *Statement*, Number 11, p. 19)		X			
h. STIS issues; e.g., substance abuse? (*Science Framework Addendum*, p. 35)			X		
i. STIS issues; e.g., genetic counseling, population and demography, environmental issues, euthanasia, and life support systems? (*Science Framework Addendum*, pp. 12–13, 31, 37; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 13 and Number 16, p. 20)			X		
___ Factual inaccuracies, if any, in the preceding section					

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II. BIOLOGY: PROCESS SKILLS (STUDENT'S EDITION)

DESCRIPTIONS OF PROCESSES*

OBSERVING

- Seeing
- Hearing
- Feeling
- Tasting
- Smelling

The main route to knowledge is through observing, using all the senses. This process is a distinct one by which people come to know about the characteristics of objects and their interactions.

COMMUNICATING

- Silent
- Oral
- Written
- Pictorial

Objects are named and events are described by people so that they can tell others about them. Communicating is a fundamental human process that enables one to learn more about a greater range of information than could be learned without this process.

COMPARING

- Sensory comparisons
- Relative positive comparisons
- Linear comparisons
- Weight comparisons
- Capacity comparisons
- Quantity comparisons

Comparing is a distinct process by which people systematically examine objects and events in terms of similarities and differences. By comparing the known to something unknown, one gains knowledge about the unknown. All measurements are forms of comparing.

ORGANIZING

- Data gathering
- Sequencing
- Grouping
- Classifying

Knowledge of principles and laws is gained only through the systematic compiling, classifying, and ordering of observed and compared data. Bodies of knowledge grow from long-term organizing processes.

RELATING

- Using space-time relationships
- Formulating experimental hypotheses
- Controlling and manipulating variables
- Experimenting

Relating is a process by which concrete and abstract ideas are woven together to test or explain phenomena. Hypothetical-deductive reasoning, coordinate graphing, the managing of variables, and the comparison of effects of one variable on another contribute to the attainment of the major concepts of science.

INFERRING

- Synthesizing, analyzing
- Generalizing
- Recognizing and predicting patterns; stating laws
- Formulating explanatory models and theorizing

The process of realizing ideas that are *not* directly observable is the process of inferring. The process leads to predictive explanations for simple and complex phenomena.

APPLYING

- Using knowledge to solve problems
- Inventing (technology)

Use of knowledge is the applying of knowledge. Inventing, creating, problem solving, and determining probabilities are ways of using information that lead to gaining further information.

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[*] *Science Framework Addendum*, pp. 4–5.

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REVIEW OF PROCESS SKILLS[†]

To what extent are the following process skills taught throughout the textbook:	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
1. Observing?	X				
2. Communicating?	X				
3. Comparing?	X				
4. Organizing?			X		
5. Relating?				X	
6. Inferring?			X		
7. Applying?				X	

[†] *Science Framework Addendum*, p. 5.

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III. BIOLOGY: TEACHER'S EDITION

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the textbook include:				
1. Alternative strategies for organizing the course? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2 and Number 4)	X			
2. A range of suggested instructional activities? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 3)		X		
3. Material that engages students in using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
4. Varied activities to meet instructional needs of students with different learning styles and interests? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 1)			X	

5. Consideration of the instructional needs of limited-English-proficient students? (*Science Framework Addendum*, p. 103, "General Criteria")				X
6. Identification of process skills related to specific activities? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6 and Number 7)				X
7. Instructional activities that integrate knowledge and skills learned in other disciplines; e.g., mathematics or history? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)			X	
8. Suggestions for structuring group instruction; e.g., cooperative learning? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2)				X
9. A listing of additional resources for extended and in-depth supplemental activities? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 3)		X		
10. A variety of assessment techniques; e.g., number and types of questions such as essay, definitions, and discussion? (*Science Framework Addendum*, p. 104, "Assessment and Evaluation," Number 1 and Number 2)				X

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IV. BIOLOGY: STUDENT'S LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. To what extent does the student's laboratory manual include:				
1. Experiences that reinforce the major concepts covered in the student's edition? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)	X			
2. Directions for laboratory setup, procedures, and data reporting related to the laboratory experiences? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8)	X			
3. Information that emphasizes safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9)	X			
4. Assignments that integrate knowledge and skills learned in other disciplines: e.g., reading and writing? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)	X			

5. Assignments that guide students toward using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
6. Information that promotes sensitivity to the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)			X	
B. To what extent are the following process skills taught throughout the laboratory manual:*				
1. Observing?	X			
2. Communicating?	X			
3. Comparing?	X			
4. Organizing?	X			
5. Relating?		X		
6. Inferring?		X		
7. Applying?			X	

***Science Framework Addendum*, p. 5 and p. 104, "Content and Process," Number 7.

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V. BIOLOGY: TEACHER'S EDITION OF THE LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the laboratory manual include:				
1. Information that encourages the shared responsibility for safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9; "Teachers' Materials," Number 9)	X			
2. Opportunities to demonstrate the interrelatedness of scientific information and process skills? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)			X	
3. Material which guides students to use higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)			X	
4. Opportunities to integrate knowledge and skills from other disciplines; e.g., writing of laboratory reports? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)			X	

5. Instructional alternatives as appropriate and necessary? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 4)		X		
6. Resource lists for acquiring: a. Equipment?	X			
b. Chemicals?	X			
c. Supplies?	X			
d. Preserved and living specimens? (*Science Framework Addendum*, p. 104, "Teachers' Materials," Number 2)	X			
7. Necessary solutions and recipes? (*Science Framework Addendum*, pp. 104–105, "Teachers' Materials," Number 2)	X			
8. Information on the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)	X			
9. List of supplemental materials and resources? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 2f)			X	
10. Information about outdoor biology fieldwork? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 7)			X	

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I. BIOLOGY: CONTENT (STUDENT'S EDITION)

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. What is biology? To what extent does the textbook include discussions about: 1. The distinguishing characteristics of life; e.g., reproduction and growth? (*Science Framework Addendum*, p. 14)				X	
2. Scientific reasoning; e.g., induction, deduction, observation, fact, hypothesis, theory, and inference? (*Science Framework Addendum*, pp. 8, 12; *Standards*,* p. S-1; *Statement*,† p. 9)			X		
3. Research methods and tools of biologists; e.g., microscopes, centrifuge, and metric measurement? (*Science Framework Addendum*, pp. 23, 26, 27)		X			
4. Science, Technology, Individuals, and Society (STIS) issues; e.g., health, ethical concerns, careers, and economic impact? (*Science Framework Addendum*, p. 13; *Statement*, Number 13 and Number 16, p. 20)	X				

___ Factual inaccuracies, if any, in the preceding section[‡]					
B. Ecology To what extent does the textbook include discussions about: 1. Diversity and stability in ecosystems? (*Science Framework Addendum*, pp. 41–42)		X			
2. Biotic and abiotic interrelationships; e.g., chains, cycles (such as carbon, nitrogen, and water), and symbiotic relationships? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11; *Statement*, Number 4, p. 18)		X			
3. Levels of ecological organization; e.g., communities, biomes, and populations? (*Science Framework Addendum*, pp. 39, 42; *Standards*, Number 4, p. S-5, and Number 16, p. S-11; *Statement*, Number 11, p. 19)			X		
4. The energy flow through the ecosystem; e.g., trophic levels and energy pyramids? (*Science Framework Addendum*, p. 40; *Statement*, Number 4, p. 18, and Number 11, p. 19)			X		
5. The impact of society on the natural environment; e.g., pollution, endangered species, resource depletion, and recycling? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11; *Statement*, Number 4, p. 18, and Number 11, p. 20)			X		
___ Factual inaccuracies, if any, in the preceding section					
C. Heredity To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Mendel, Morgan, Sutton, Watson, and Crick? (*Science Framework Addendum*, p. 8; *Standards*, Number 12, p. S-9, and Number 14, p. S-10; *Statement*, p. 12)		X			

NOTE: The secondary biology textbook review instrument is correlated with the following resource documents:

- The *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve* is cited as *Science Framework Addendum*.
- [*]*Model Curriculum Standards: Grades Nine Through Twelve* is cited as *Standards*.
- [†]The *Statement on Preparation in Natural Science Expected of Entering Freshmen* is cited as *Statement*.

The first two documents are published by the California State Department of Education. The last one listed was issued by the Academic Senates of the California Community Colleges, the California State University, and the University of California in cooperation with the California Round Table on Educational Opportunity. Each publication is available from the California State Department of Education (see pages 403 and 404 for ordering information).

[‡] See "Factual Inaccuracies" on page xii.

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
C. Heredity—Continued					
2. Scientific tools to model heredity; e.g., probability, statistics, and pedigrees? (*Science Framework Addendum*, p. 20; *Standards*, Number 14, p. S-10)			X		
3. Cell cycle, meiosis, and mitosis? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 5, p. 18)		X			
4. Chromosomes, genes, DNA, and RNA? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)		X			
5. Biochemical aspects of heredity; e.g., transcription, translation, and protein synthesis? (*Science Framework Addendum*, p. 19; *Statement*, Number 7, p. 18)			X		

6. Gene and chromosome mutations; e.g., inversions, insertions, and nonsense codons? (*Science Framework Addendum*, p. 19; *Standards*, Number 12, p. S-9; *Statement*, Number 7, p. 18)		X			
7. Human genetic variability; e.g., color blindness, baldness, and blood groups? (*Science Framework Addendum*, p. 17; *Standards*, Number 14, p. S-10; *Statement*, Number 7, p. 18)		X			
8. The influence of heredity on health and disease; e.g., sickle-cell anemia, hemophilia, and Down's syndrome? (*Standards*, Number 12, p. S-9; *Statement*, Number 13, p. 20)		X			
9. STIS issues; e.g., selective breeding and techniques and ethics of genetic engineering? (*Science Framework Addendum*, pp. 19–20; *Statement*, Number 5, p. 18, and Number 13, p. 20)			X		
___ Factual inaccuracies, if any, in the preceding section					
D. Evolution To what extent does the textbook include discussions about: 1. The genetic basis of evolution; e.g., genes as the source of variation? (*Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)			X		
2. A historical perspective; e.g., works of Lamarck, Wallace, and Darwin? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1, and Number 15, p. S-11; *Statement*, p. 12, and Number 6, p. 18)		X			
3. Scientific evidence; e.g., paleontology, genetics, biochemistry, and comparative anatomy? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 6, p. 18)	X				
4. Fossil evidence for evolution; e.g., skeletons, pollen, dating methods, and sequence of fossil forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)	X				
5. Evolutionary processes and their effects; e.g., selection, drift, adaptation, speciation, and extinction? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11)		X			

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
D. Evolution—Continued					
6. Scientific theories about the origin of life; e.g., inorganic to organic? (*Science Framework Addendum*, p. 24; *Statement*, Number 6, p. 18)			X		
7. The history of life on earth; e.g., evolution from unicellular to multicellular and more specialized forms? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11; *Statement*, Number 6, p. 18)			X		
8. Human evolution; e.g., paleoanthropology and the work on "Lucy"? (*Science Framework Addendum*, p. 35; *Statement*, Number 6, p. 18)				X	
Factual inaccuracies, if any, in the preceding section					

E. Classification To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Aristotle and Linnaeus? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
2. Evolutionary relationships as the basis of classification? (*Science Framework Addendum*, pp. 20, 31; *Statement*, Number 8, p. 19)		X			
3. Principles of classification; e.g., hierarchy and binomial nomenclature? (*Standards*, Number 3, p. S-5; *Statement*, Number 8, p. 19)	X				
4. Comparative anatomy, genetic structure (phenotypes), and biochemistry as data sets for classification? (*Science Framework Addendum*, p. 20; *Statement*, Number 8, p. 19)	X				
___ Factual inaccuracies, if any, in the preceding section					
F. Chemistry To what extent does the textbook include discussions about: 1. Atoms, molecules, chemical bonds, reactions, and the periodic table? (*Science Framework Addendum*, p. 24; *Statement*, Number 2, p. 17)			X		
2. The structure and function of molecules in living things; e.g., proteins, nucleic acids, lipids, and polysaccarides? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 2, p. 17)	X				
3. Energy processes; e.g., laws of thermodynamics, diffusion, osmosis, and enzyme kinetics? (*Science Framework Addendum*, p. 19)	X				
___ Factual inaccuracies, if any, in the preceding section					
G. Cells To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Hook, Schleiden, Schwann, and Virchow? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
G. Cells—Continued					
2. The structure and function of cells and cell components, including the similarities and differences between plant and animal cells? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4; *Statement*, Number 1, p. 17)	X				
3. Cellular homeostasis? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)			X		
4. Cellular respiration? (*Standards*, Number 1, p. S-4; *Statement*, Number 4, p. 18)			X		
5. Photosynthesis? (*Science Framework Addendum*, p. 24; *Standards*, Number 11, p. S-9; *Statement*, Number 14, p. 18)			X		

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6. Levels of organization, cells to systems? (*Standards*, Number 2, p. S-4; *Statement*, Number 3, p. 18)			X		
___ Factual inaccuracies, if any, in the preceding section					
H. Viruses To what extent does the textbook include discussions about: 1. The taxonomy of viruses; e.g., rhinoviruses, herpes simplex, and retroviruses? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)				X	
2. A historical perspective; e.g., tobacco mosaic virus, polio, Jenner, or Pasteur? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		
3. The viral structures and their functions? (*Science Framework Addendum*, p. 27; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)			X		
4. Reproduction; e.g., invasion? (*Science Framework Addendum*, p. 27; *Statement*, Number 5, p. 18)			X		
5. STIS issues: nature of viral diseases and their social and economic impact; e.g., AIDS, influenza, and German measles? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)			X		
___ Factual inaccuracies, if any, in the preceding section					
I. Monera To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of monera? (*Science Framework Addendum*, pp. 15, 18; *Statement*, Number 10, p. 19)			X		
2. A historical perspective; e.g., Pasteur or Koch? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)				X	
3. The distinguishing structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
I. Monera—Continued					
4. Reproduction? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		
5. Diseases caused by monera; e.g., strep throat, urinary tract infections, and STDs? (*Science Framework Addendum*, p. 27)			X		
6. Interrelationships with other living things and the environment; e.g., nitrogen fixation and decomposition? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)		X			
7. STIS issues; e.g., food production, waste disposal, pollution, and genetic engineering? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)		X			
Factual inaccuracies, if any, in the preceding section					

J. Protists To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of protists? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		
2. Protists' structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)		X			
3. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		
4. Diseases caused by protists; e.g., gingivitis, dysentery, and malaria? (*Science Framework Addendum*, p. 27; *Statement*, Number 10, p. 19)			X		
5. Interrelationships with other living things and the environment; e.g., symbiosis? (*Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)			X		
6. STIS issues; e.g., food sanitation, industrial products, waste disposal, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 10, p. 19)				X	
— Factual inaccuracies, if any, in the preceding section					
K. Fungi To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of fungi? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)		X			
2. A historical perspective; e.g., Fleming? (*Science Framework Addendum*, p. 8; *Standards*, p. S-1; *Statement*, p. 12)			X		
3. The fungal structures and their functions? (*Science Framework Addendum*, p. 26; *Statement*, Number 10, p. 19)			X		
4. Growth and development? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
K. Fungi—Continued					
5. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 26; *Statement*, Number 5, p. 18)			X		
6. Diseases caused by fungi; e.g., ringworm, yeast infection, athlete's foot, smuts, and rusts? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5; *Statement*, Number 10, p. 19)			X		
7. Interrelationships with other living things and the environment; e.g., decomposition, symbiosis (lichen), and mycorrhiza? (*Standards*, Number 10, p. S-8; *Statement*, Number 10, p. 19)			X		
8. STIS issues; e.g., food (toxic mushrooms), beverages, antibiotics, and fungicides? (*Science Framework Addendum*, p. 26; *Standards*, Number 17, p. S-12; *Statement*, Number 10, p. 19)		X			

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___ Factual inaccuracies, if any, in the preceding section					
L. Plants To what extent does the textbook include discussions about: 1. The evolution, the phylogeny, and taxonomy of plants? (*Standards*, Number 3, p. S-5; *Statement*, Number 10, p. 19)	X				
2. Plant structures and their functions; e.g., photosynthesis, food storage, and transport? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8, and Number 11, p. S-9; *Statement*, Number 10, p. 19)	X				
3. Adaptations for land existence? (*Science Framework Addendum*, pp. 18, 22, 24; *Statement*, p. 16, Number 10, p. 19)		X			
4. Growth and development, including the role of hormones? (*Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)	X				
5. Propagation and reproduction, including role of pollinators? (*Science Framework Addendum*, p. 25; *Statement*, Number 5, p. 18)	X				
6. Response to stimuli? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8)			X		
7. Health and disease states of plants; e.g., nutrient deficiencies and parasites? (*Science Framework Addendum*, p. 25; *Statement*, Number 10, p. 19)			X		
8. STIS issues; e.g., horticulture and environmental concerns, timber harvest, defolients, and endangered species? (*Science Framework Addendum*, p. 25; *Standards*, Number 10, p. S-8, Number 16, p. S-11, and Number 17, p. S-12)		X			
___ Factual inaccuracies, if any, in the preceding section					
M. Animals To what extent does the textbook include discussions about: 1. The taxonomic diversity of animals? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)	X				

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I. BIOLOGY: CONTENT (STUDENT'S EDITION)—Continued

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
M. Animals—Continued					
2. Invertebrates					
To what extent does the textbook include discussions about:					
a. Invertebrate structures and their functions; e.g., systems, symmetry? (*Science Framework Addendum*, p. 29; *Statement*, Number 9, p. 19)	X				
b. Evolutionary relationships and fossil histories? (*Standards*, Number 15, p. S-11; *Statement*, p. 16, and Number 9, p. 19)		X			
c. Adaptations; e.g., for feeding and locomotion? (*Standards*, Number 15, p. S-11)		X			
d. Growth, development, and embryology? (*Science Framework Addendum*, pp. 30–31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)		X			

e. Reproduction; e.g., asexual and sexual? (*Science Framework Addendum*, p. 30; *Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18, and Number 9, p. 19)	X				
f. Behavior; e.g., innate versus learned, social behaviors, communication, and reproductive behaviors? (*Standards*, Number 5, p. S-6)	X				
g. Health and diseases; e.g., vectors and parasitism? (*Science Framework Addendum*, p. 25; *Statement*, Number 13, p. 20)			X		
h. STIS issues; e.g., agriculture, food, pests, pest control, and aquaculture? (*Standards*, Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 19)			X		
3. Chordates (nonhuman) To what extent does the textbook include discussions about: a. Chordate structures and their functions; e.g., comparative anatomy and physiology and classical chordate characteristics? (*Science Framework Addendum*, pp. 28, 30; *Standards*, Number 7, p. S-7, and Number 9, p. S-8; *Statement*, Number 9, p. 19)	X				
b. Evolutionary relationships and fossil histories? (*Science Framework Addendum*, pp. 15, 18; *Statement*, p. 16, and Number 9, p. 19)	X				
c. Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, p. 30)	X				
d. Growth, development, and embryology? (*Science Framework Addendum*, p. 31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10; *Statement*, Number 5, p. 18)	X				
e. Reproduction? (*Standards*, Number 13, p. S-10; *Statement*, Number 5, p. 18)	X				
f. Behavior; e.g., innate versus learned, social behaviors, or communications? (*Standards*, Number 5, p. S-6; *Statement*, Number 9, p. 19)	X				
g. STIS issues; e.g., wildlife management, live animals used in research, veterinary medicine, and endangered species? (*Science Framework Addendum*, p. 13; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 5, p. 18, and Number 11, p. 20)			X		

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M. Animals—Continued 4. Vertebrates (Human) To what extent does the textbook include discussions about: a. Structure, function, and maintenance of major body systems: (1) Nervous system and sense organs?			X		
(2) Circulatory system?			X		
(3) Digestive system?			X		
(4) Respiratory system?			X		
(5) Reproductive system?			X		

(6) Musculoskeletal system?			X		
(7) Excretory system?			X		
(8) Integumentary system?			X		
(9) The endocrine system? (*Science Framework Addendum*, p. 33; *Standards*, Number 7, p. S-7; *Statement*, Number 9, p. 19, and Number 12, p. 20)			X		
b. Evolutionary relationships and fossil histories? (*Science Framework Addendum*, p. 35; *Statement*, p. 16, and Number 9, p. 19)			X		
c. Adaptations; e.g., for feeding and locomotion? (*Science Framework Addendum*, pp. 32, 33, 35, 37)	X				
d. Growth, development, and embryology? (*Science Framework Addendum*, p. 34; *Standards*, Number 7 and Number 8, p. S-7; *Statement*, Number 12, p. 20)		X			
e. Behavior; e.g., innate versus learned, social behaviors, and communication? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 5 and Number 6, p. S-6; *Statement*, Number 12, p. 20)			X		
f. Health, diseases, and immunity; e.g., genetic, communicable, degenerative, cancer, diagnostic instruments, and STDs? (*Science Framework Addendum*, p. 35; *Standards*, Number 17, p. S-12)	X				
g. Interrelationships with other living things and the environment; e.g., domestication of plants and animals or habitat destruction? (*Standards*, Number 4, p. S-5; *Statement*, Number 11, p. 19)		X			
h. STIS issues; e.g., substance abuse? (*Science Framework Addendum*, p. 35)				X	
i. STIS issues; e.g., genetic counseling, population and demography, environmental issues, euthanasia, and life support systems? (*Science Framework Addendum*, pp. 12–13, 31, 37; *Standards*, Number 16, p. S-11, and Number 17, p. S-12; *Statement*, Number 13 and Number 16, p. 20)			X		
___ Factual inaccuracies, if any, in the preceding section					

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II. BIOLOGY: PROCESS SKILLS (STUDENT'S EDITION)

DESCRIPTIONS OF PROCESSES*

OBSERVING

- Seeing
- Hearing
- Feeling
- Tasting
- Smelling

The main route to knowledge is through observing, using all the senses. This process is a distinct one by which people come to know about the characteristics of objects and their interactions.

COMMUNICATING

- Silent
- Oral
- Written
- Pictorial

Objects are named and events are described by people so that they can tell others about them. Communicating is a fundamental human process that enables one to learn more about a greater range of information than could be learned without this process.

COMPARING

- Sensory comparisons
- Relative positive comparisons
- Linear comparisons
- Weight comparisons
- Capacity comparisons
- Quantity comparisons

Comparing is a distinct process by which people systematically examine objects and events in terms of similarities and differences. By comparing the known to something unknown, one gains knowledge about the unknown. All measurements are forms of comparing.

ORGANIZING

- Data gathering
- Sequencing
- Grouping
- Classifying

Knowledge of principles and laws is gained only through the systematic compiling, classifying, and ordering of observed and compared data. Bodies of knowledge grow from long-term organizing processes.

RELATING

- Using space-time relationships
- Formulating experimental hypotheses
- Controlling and manipulating variables
- Experimenting

Relating is a process by which concrete and abstract ideas are woven together to test or explain phenomena. Hypothetical-deductive reasoning, coordinate graphing, the managing of variables, and the comparison of effects of one variable on another contribute to the attainment of the major concepts of science.

INFERRING

- Synthesizing, analyzing
- Generalizing
- Recognizing and predicting patterns; stating laws
- Formulating explanatory models and theorizing

The process of realizing ideas that are *not* directly observable is the process of inferring. The process leads to predictive explanations for simple and complex phenomena.

APPLYING

- Using knowledge to solve problems
- Inventing (technology)

Use of knowledge is the applying of knowledge. Inventing, creating, problem solving, and determining probabilities are ways of using information that lead to gaining further information.

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[*] *Science Framework Addendum*, pp. 4–5.

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REVIEW OF PROCESS SKILLS[1]

To what extent are the following process skills taught throughout the textbook:	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
1. Observing?	X				
2. Communicating?	X				
3. Comparing?	X				
4. Organizing?		X			
5. Relating?		X			
6. Inferring?		X			
7. Applying?			X		

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[1] *Science Framework Addendum*, p. 5.

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III. BIOLOGY: TEACHER'S EDITION

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the textbook include: 1. Alternative strategies for organizing the course? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2 and Number 4)			X	
2. A range of suggested instructional activities? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 3)	X			
3. Material that engages students in using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)				X
4. Varied activities to meet instructional needs of students with different learning styles and interests? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 1)	X			

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5. Consideration of the instructional needs of limited-English-proficient students? (*Science Framework Addendum*, p. 103, "General Criteria")				X
6. Identification of process skills related to specific activities? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6 and Number 7)			X	
7. Instructional activities that integrate knowledge and skills learned in other disciplines; e.g., mathematics or history? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		
8. Suggestions for structuring group instruction; e.g., cooperative learning? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2)			X	
9. A listing of additional resources for extended and in-depth supplemental activities? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 3)		X		
10. A variety of assessment techniques; e.g., number and types of questions such as essay, definitions, and discussion? (*Science Framework Addendum*, p. 104, "Assessment and Evaluation," Number 1 and Number 2)		X		

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IV. BIOLOGY: STUDENT'S LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. To what extent does the student's laboratory manual include:				
1. Experiences that reinforce the major concepts covered in the student's edition? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)	X			
2. Directions for laboratory setup, procedures, and data reporting related to the laboratory experiences? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8)	X			
3. Information that emphasizes safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9)	X			
4. Assignments that integrate knowledge and skills learned in other disciplines; e.g., reading and writing? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		

5. Assignments that guide students toward using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)	X			
6. Information that promotes sensitivity to the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)			X	
B. To what extent are the following process skills taught throughout the laboratory manual:* 1. Observing?	X			
2. Communicating?	X			
3. Comparing?	X			
4. Organizing?		X		
5. Relating?		X		
6. Inferring?		X		
7. Applying?				X

**Science Framework Addendum*, p. 5 and p. 104, "Content and Process," Number 7.

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V. BIOLOGY: TEACHER'S EDITION OF THE LABORATORY MANUAL

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To what extent does the teacher's edition of the laboratory manual include: 1. Information that encourages the shared responsibility for safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9; "Teachers' Materials," Number 9)	X			
2. Opportunities to demonstrate the interrelatedness of scientific information and process skills? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)				X
3. Material which guides students to use higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
4. Opportunities to integrate knowledge and skills from other disciplines; e.g., writing of laboratory reports? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)			X	

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5. Instructional alternatives as appropriate and necessary? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 4)				X
6. Resource lists for acquiring: a. Equipment?	X			
b. Chemicals?	X			
c. Supplies?	X			
d. Preserved and living specimens? (*Science Framework Addendum*, p. 104, "Teachers' Materials," Number 2)	X			
7. Necessary solutions and recipes? (*Science Framework Addendum*, pp. 104–105, "Teachers' Materials," Number 2)	X			
8. Information on the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)				X
9. List of supplemental materials and resources? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 2f)			X	
10. Information about outdoor biology fieldwork? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 7)		X		

SECONDARY
TEXTBOOK
REVIEW

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I. LIFE SCIENCE: CONTENT (STUDENT'S EDITION)

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. Nature of Science To what extent does the textbook include discussions about: 1. The characteristics of living things; e.g., reproduction and growth? (*Science Framework Addendum*, p. 14)			X		
2. The "scientific method"; e.g., observation, hypothesis, and experimentation? (*Science Framework Addendum*, pp. 8, 12; *Standards*,* p. S-1)			X		
3. Science, Technology, Individuals, and Society (STIS) issues: life science in everyday life; e.g., health, ethical concerns, and careers? (*Science Framework Addendum*, p. 13)				X	
• Factual inaccuracies, if any, in the preceding section'					

B. Ecology To what extent does the textbook include discussions about: 1. Biotic and abiotic interrelationships; e.g., chains, cycles (such as carbon, nitrogen, and water), and symbiotic relationships? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11)		X			
2. Levels of ecological organization; e.g., populations, communities, and biomes? (*Science Framework Addendum*, p. 39; *Standards*, Number 4, p. S-5, and Number 16, p. S-11)			X		
3. Structure of and energy flow through the ecosystem; e.g., producers, consumers, decomposers, and energy pyramids? (*Science Framework Addendum*, p. 40)			X		
4. STIS issues: conservation and the impact of society on the natural environment; e.g., pollution, endangered species, resource depletion, and recycling? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11)		X			
___ Factual inaccuracies, if any, in the preceding section					
C. Heredity To what extent does the textbook include discussions about: 1. Mendelian genetics? (*Science Framework Addendum*, p. 17; *Standards*, Number 14, p. S-10)		X			
2. The concept of passing of genetic traits from parent to offspring; e.g., family pedigree? (*Standards*, Number 14, p. S-10)		X			
3. Genetic diseases; e.g., hemophilia, Down's syndrome, cystic fibrosis, or sickle-cell anemia? (*Standards*, Number 12, p. S-9)			X		

NOTE: The secondary life science textbook review instrument is correlated with the following resource documents:

- The *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve* is cited as *Science Framework Addendum*.
- **Model Curriculum Standards: Grades Nine Through Twelve* is cited as *Standards*.

These documents are published by the California State Department of Education. (See pages 403 and 404 for ordering information).

*A factual inaccuracy was noted in this section. The publisher has given assurances that the inaccuracy will be corrected in the next edition of this book. For more information see "Factual Inaccuracies" on page xii.

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
C. Heredity—Continued					
4. STIS issues; e.g., the benefits and problems of genetic engineering? (*Science Framework Addendum*, pp. 19–20)				X	
— Factual inaccuracies, if any, in the preceding section					
D. Evolution					
To what extent does the textbook include discussions about:					
1. The factual basis for evolution; e.g., anatomical evidence and fossil records? (*Standards*, Number 15, p. S-11)		X			
2. Human evolution? (*Science Framework Addendum*, p. 35)				X	

3. The mechanisms of evolution; e.g., mutation, selection, speciation, adaptation, and extinction? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11)			X		
___ Factual inaccuracies, if any, in the preceding section					
E. Classification To what extent does the textbook include discussions about: 1. The historical development of systems of classification; e.g., Aristotle and Linnaeus? (*Standards*, p. S-1, Number 3, p. S-5)				X	
2. Identification and description of the five kingdom system of classifying living things? (*Science Framework Addendum*, p. 14)					X
___ Factual inaccuracies, if any, in the preceding section					
F. Energy Processes To what extent does the textbook include discussions about: 1. The chemical basis of life; e.g., atoms, molecules, bonds, and reactions? (*Science Framework Addendum*, p. 24)			X		
2. Human nutrition as related to everyday diet; e.g., food, vitamins, water, and minerals? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 8, p. S-7)			X		
3. Cellular respiration? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4, and Number 4, p. S-5)			X		
4. Photosynthesis? (*Science Framework Addendum*, p. 24; *Standards*, Number 11, p. S-9)			X		
5. The conversion of matter and energy as it applies to living systems; e.g., conservation of energy and matter? (*Science Framework Addendum*, p. 24; *Standards*, Number 1, p. S-4)				X	
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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
G. Cells, Tissues, Organs, and Organ Systems To what extent does the textbook include discussions about:					
1. A historical perspective; e.g., Hook, Schleiden, Schwann, and Virchow? (*Standards*, Number 12, Activity Number 3, p. S-9)			X		
2. The structures and functions of cells and cell components, including the similarities and differences between plant and animal cells? (*Standards*, Number 1, p. S-4, and Number 12, p. S-9)			X		
3. The cell cycle, including mitosis and meiosis? (*Standards*, Number 12, p. S-9)			X		
4. The structure and function of DNA and RNA in cell replication and in the reproduction of organisms? (*Standards*, Number 12, p. S-9)			X		

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5. The interrelationships among cells, tissues, organs, and organ systems within multicellular organisms? (*Standards*, Number 2, p. S-4)			X		
— Factual inaccuracies, if any, in the preceding section					
H. Viruses To what extent does the textbook include discussions about: 1. Characteristics of viruses? (*Science Framework Addendum*, p. 27; *Standards*, Number 3, p. S-5)				X	
2. Reproduction of viruses? (*Science Framework Addendum*, p. 27)					X
3. Human diseases which involve viral pathogens? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12)				X	
— Factual inaccuracies, if any, in the preceding section					
I. Monera To what extent does the textbook include discussions about: 1. The major groups of monera? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5)			X		
2. The types of diseases produced by certain monera? (*Science Framework Addendum*, p. 27)		X			
3. Reproduction in monera? (*Science Framework Addendum*, p. 26)			X		
4. STIS issues; e.g., food production, waste disposal, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)				X	
— Factual inaccuracies, if any, in the preceding section					

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
J. Protists To what extent does the textbook include discussions about:					
1. The major groups of protists? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5)			X		
2. Diseases caused by protists? (*Science Framework Addendum*, p. 27)			X		
3. Reproduction in protists? (*Science Framework Addendum*, p. 26)			X		
4. STIS issues; e.g., food production, waste disposal, industrial products, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)					X

___ Factual inaccuracies, if any, in the preceding section					
K. Fungi To what extent does the textbook include discussions about: 1. The major groups of fungi? (*Science Framework Addendum*, pp. 14–15, 27; *Standards*, Number 3, p. S-5)			X		
2. Diseases caused by fungi; e.g., athlete's foot, ringworm, yeast infection, smuts, and rusts? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5)				X	
3. Asexual and sexual reproduction in fungi? (*Science Framework Addendum*, p. 26)			X		
4. STIS issues; e.g., food (toxic mushrooms), beverages, or antibiotics? (*Science Framework Addendum*, p. 26; *Standards*, Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					
L. Plants To what extent does the textbook include discussions about: 1. Classification of plants into groups? (*Standards*, Number 4, p. S-5)				X	
2. The structures and the functions of the parts of plants? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8, and Number 11, p. S-9)		X			
3. Response to stimuli? (*Science Framework Addendum*, p. 24)			X		
4. Plant adaptations? (*Science Framework Addendum*, pp. 18, 22, and 24)				X	
5. Asexual and sexual reproduction in plants? (*Standards*, Number 13, p. S-10)		X			

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I. LIFE SCIENCE: CONTENT (STUDENT'S EDITION)—Continued

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
L. Plants—Continued					
6. STIS issues; e.g., the useful applications of plants and plant products? (*Science Framework Addendum*, p. 25; *Standards*, Number 10, p. S-8, Number 16, p. S-11, and Number 17, p. S-12)			X		
— Factual inaccuracies, if any, in the preceding section					
M. Animals					
To what extent does the textbook include discussions about:					
1. Invertebrates					
a. Descriptions of the major phyla; e.g., porifera, coelenterates, worms, mollusks, echinoderms, and arthropods? (*Science Framework Addendum*, pp. 29–30)				X	

b. Structure and function of organs and systems? (*Science Framework Addendum*, pp. 28–29)		X			
c. Growth and development? (*Science Framework Addendum*, pp. 30–31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10)					X
d. Reproduction, including sexual and asexual? (*Science Framework Addendum*, p. 30; *Standards*, Number 13, p. S-10)			X		
e. Behavior; e.g., social and reproductive? (*Standards*, Number 5, p. S-6)				X	
f. STIS issues; e.g., agriculture, food, pests, and aquaculture? (*Standards*, Number 17, p. S-12)				X	
2. Vertebrates (Nonhuman) a. Description of major classes of chordates; e.g., fish, amphibians, reptiles, birds, and mammals? (*Science Framework Addendum*, p. 29)				X	
b. Structure and functions of organs and systems? (*Science Framework Addendum*, pp. 28, 30; *Standards*, Number 7, p. S-7, and Number 9, p. S-8)			X		
c. Growth, development, and embryology? (*Science Framework Addendum*, p. 31)		X			
d. Sexual reproduction? (*Standards*, Number 13, p. S-10)		X			
e. Behavior; e.g., social and reproductive? (*Standards*, Number 5, p. S-10)			X		
f. STIS issues; e.g., wildlife management? (*Science Framework Addendum*, p. 13; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)			X		

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
M. Animals—Continued					
3. Vertebrates (Human)					
a. Structure, function, and maintenance of major body systems:					
(1) Nervous system and sense organs?		X			
(2) Circulatory system?		X			
(3) Digestive system?		X			
(4) Respiratory system?				X	
(5) Reproductive system?			X		
(6) Musculoskeletal system?				X	

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(7) Excretory system?			X		
(8) Integumentary system?			X		
(9) Endocrine system? (*Science Framework Addendum*, p. 33; *Standards*, Number 7, p. S-7)		X			
b. Growth, development, and embryology? (*Science Framework Addendum*, p. 34; *Standards*, Number 7 and Number 8, p. S-7)			X		
c. Behavior; e.g., innate compared with learned? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 5 and Number 6, p. S-6)			X		
d. Transmission, symptoms, and prevention of STDs? (*Standards*, Number 17, p. S-12)				X	
e. STIS issues; e.g., genetic counseling, noncommunicable diseases, environmental issues, and substance abuse? (*Science Framework Addendum*, pp. 12–13, 31, 37; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)					X
• Factual inaccuracies, if any, in the preceding section*					

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II. LIFE SCIENCE: PROCESS SKILLS (STUDENT'S EDITION)

DESCRIPTIONS OF PROCESSES*

OBSERVING

- Seeing
- Hearing
- Feeling
- Tasting
- Smelling

The main route to knowledge is through observing, using all the senses. This process is a distinct one by which people come to know about the characteristics of objects and their interactions.

COMMUNICATING

- Silent
- Oral
- Written
- Pictorial

Objects are named and events are described by people so that they can tell others about them. Communicating is a fundamental human process that enables one to learn more about a greater range of information than could be learned without this process.

COMPARING

- Sensory comparisons
- Relative positive comparisons
- Linear comparisons
- Weight comparisons
- Capacity comparisons
- Quantity comparisons

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Comparing is a distinct process by which people systematically examine objects and events in terms of similarities and differences. By comparing the known to something unknown, one gains knowledge about the unknown. All measurements are forms of comparing.

ORGANIZING

- Data gathering
- Sequencing
- Grouping
- Classifying

Knowledge of principles and laws is gained only through the systematic compiling, classifying, and ordering of observed and compared data. Bodies of knowledge grow from long-term organizing processes.

RELATING

- Using space-time relationships
- Formulating experimental hypotheses
- Controlling and manipulating variables
- Experimenting

Relating is a process by which concrete and abstract ideas are woven together to test or explain phenomena. Hypothetical-deductive reasoning, coordinate graphing, the managing of variables, and the comparison of effects of one variable on another contribute to the attainment of the major concepts of science.

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INFERRING

- Synthesizing, analyzing
- Generalizing
- Recognizing and predicting patterns; stating laws
- Formulating explanatory models and theorizing

The process of realizing ideas that are *not* directly observable is the process of inferring. The process leads to predictive explanations for simple and complex phenomena.

APPLYING

- Using knowledge to solve problems
- Inventing (technology)

Use of knowledge is the applying of knowledge. Inventing, creating, problem solving, and determining probabilities are ways of using information that lead to gaining further information.

Science Framework Addendum, pp. 4–5.

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REVIEW OF PROCESS SKILLS[1]

To what extent are the following process skills taught throughout the textbook:	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
1. Observing?	X				
2. Communicating?		X			
3. Comparing?	X				
4. Organizing?			X		
5. Relating?				X	
6. Inferring?					X
7. Applying?					X

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[1] *Science Framework Addendum*, p. 5.

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III. LIFE SCIENCE: TEACHER'S EDITION

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the textbook include:				
1. Alternative strategies for organizing the course? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2 and Number 4)			X	
2. A range of suggested instructional activities? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 3)			X	
3. Material that engages students in using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)			X	
4. Varied activities to meet instructional needs of students with different learning styles and interests? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 1)			X	

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5. Consideration of the instructional needs of limited-English-proficient students? (*Science Framework Addendum*, p. 103, "General Criteria")			X	
6. Identification of process skills related to specific activities? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6 and Number 7)				X
7. Instructional activities that integrate knowledge and skills learned in other disciplines; e.g., mathematics or history? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)				X
8. Suggestions for structuring group instruction; e.g., cooperative learning? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2)				X
9. A listing of additional resources for extended and in-depth supplemental activities? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 3)		X		
10. A variety of assessment techniques; e.g., number and types of questions such as essay, definitions, and discussion? (*Science Framework Addendum*, p. 104, "Assessment and Evaluation," Number 1 and Number 2)				X

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IV. LIFE SCIENCE: STUDENT'S LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. To what extent does the student's laboratory manual include:				
1. Experiences that reinforce the major concepts covered in the student's edition? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)	X			
2. Directions for laboratory setup, procedures, and data reporting related to the laboratory experiences? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8)	X			
3. Information that emphasizes safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9)				X
4. Assignments that integrate knowledge and skills learned in other disciplines; e.g., reading and writing? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		

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5. Assignments that guide students toward using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)			X	
6. Information that promotes sensitivity to the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)				X
B. To what extent are the following process skills taught throughout the laboratory manual:* 1. Observing?	X			
2. Communicating?	X			
3. Comparing?	X			
4. Organizing?	X			
5. Relating?		X		
6. Inferring?				X
7. Applying?				X

**Science Framework Addendum*, p. 5 and p. 104, "Content and Process," Number 7.

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V. LIFE SCIENCE: TEACHER'S EDITION OF THE LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the laboratory manual include:				
1. Information that encourages the shared responsibility for safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9; "Teachers' Materials," Number 9)		X		
2. Opportunities to demonstrate the interrelatedness of scientific information and process skills? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)				X
3. Material which guides students to use higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)			X	
4. Opportunities to integrate knowledge and skills from other disciplines; e.g., writing of laboratory reports? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)			X	

5. Instructional alternatives as appropriate and necessary? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 4)			X	
6. Resource lists for acquiring: a. Equipment?	X			
b. Chemicals?			X	
c. Supplies?		X		
d. Preserved and living specimens? (*Science Framework Addendum*, p. 104, "Teachers' Materials," Number 2)		X		
7. Necessary solutions and recipes? (*Science Framework Addendum*, pp. 104–105, "Teachers' Materials," Number 2)				X
8. Information on the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)				X
9. List of supplemental materials and resources? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 2f)			X	
10. Information about outdoor biology fieldwork? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 7)				X

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. **Nature of Science**					
To what extent does the textbook include discussions about:					
1. The characteristics of living things; e.g., reproduction and growth? (*Science Framework Addendum*, p. 14)			X		
2. The "scientific method"; e.g., observation, hypothesis, and experimentation? (*Science Framework Addendum*, pp. 8, 12; *Standards*,* p. S-1)		X			
3. Science, Technology, Individuals, and Society (STIS) issues: life science in everyday life; e.g., health, ethical concerns, and careers? (*Science Framework Addendum*, p. 13)			X		
___ Factual inaccuracies, if any, in the preceding section'					

B. Ecology To what extent does the textbook include discussions about: 1. Biotic and abiotic interrelationships; e.g., chains, cycles (such as carbon, nitrogen, and water), and symbiotic relationships? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11)		X			
2. Levels of ecological organization; e.g., populations, communities, and biomes? (*Science Framework Addendum*, p. 39; *Standards*, Number 4, p. S-5, and Number 16, p. S-11)		X			
3. Structure of and energy flow through the ecosystem; e.g., producers, consumers, decomposers, and energy pyramids? (*Science Framework Addendum*, p. 40)		X			
4. STIS issues: conservation and the impact of society on the natural environment; e.g., pollution, endangered species, resource depletion, and recycling? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11)		X			
___ Factual inaccuracies, if any, in the preceding section					
C. Heredity To what extent does the textbook include discussions about: 1. Mendelian genetics? (*Science Framework Addendum*, p. 17; *Standards*, Number 14, p. S-10)		X			
2. The concept of passing of genetic traits from parent to offspring; e.g., family pedigree? (*Standards*, Number 14, p. S-10)		X			
3. Genetic diseases; e.g., hemophilia, Down's syndrome, cystic fibrosis, or sickle-cell anemia? (*Standards*, Number 12, p. S-9)				X	

NOTE: The secondary life science textbook review instrument is correlated with the following resource documents:

- The *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve* is cited as *Science Framework Addendum*.
- **Model Curriculum Standards: Grades Nine Through Twelve* is cited as *Standards*.

These documents are published by the California State Department of Education. (See pages 403 and 404 for ordering information).

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
C. Heredity—Continued					
4. STIS issues; e.g., the benefits and problems of genetic engineering? (*Science Framework Addendum*, pp. 19–20)			X		
___ Factual inaccuracies, if any, in the preceding section					
D. Evolution					
To what extent does the textbook include discussions about:					
1. The factual basis for evolution; e.g., anatomical evidence and fossil records? (*Standards*, Number 15, p. S-11)			X		
2. Human evolution? (*Science Framework Addendum*, p. 35)					X

3. The mechanisms of evolution; e.g., mutation, selection, speciation, adaptation, and extinction? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11)			X		
• Factual inaccuracies, if any, in the preceding section*					
E. Classification To what extent does the textbook include discussions about: 1. The historical development of systems of classification; e.g., Aristotle and Linnaeus? (*Standards*, p. S-1, Number 3, p. S-5)				X	
2. Identification and description of the five kingdom system of classifying living things? (*Science Framework Addendum*, p. 14)			X		
___ Factual inaccuracies, if any, in the preceding section					
F. Energy Processes To what extent does the textbook include discussions about: 1. The chemical basis of life; e.g., atoms, molecules, bonds, and reactions? (*Science Framework Addendum*, p. 24)				X	
2. Human nutrition as related to everyday diet; e.g., food, vitamins, water, and minerals? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 8, p. S-7)		X			
3. Cellular respiration? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4, and Number 4, p. S-5)				X	
4. Photosynthesis? (*Science Framework Addendum*, p. 24; *Standards*, Number 11, p. S-9)			X		
5. The conversion of matter and energy as it applies to living systems; e.g., conservation of energy and matter? (*Science Framework Addendum*, p. 24; *Standards*, Number 1, p. S-4)				X	
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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
G. Cells, Tissues, Organs, and Organ Systems To what extent does the textbook include discussions about:					
1. A historical perspective; e.g., Hook, Schleiden, Schwann, and Virchow? (*Standards*, Number 12, Activity Number 3, p. S-9)			X		
2. The structures and functions of cells and cell components, including the similarities and differences between plant and animal cells? (*Standards*, Number 1, p. S-4, and Number 12, p. S-9)			X		
3. The cell cycle, including mitosis and meiosis? (*Standards*, Number 12, p. S-9)			X		
4. The structure and function of DNA and RNA in cell replication and in the reproduction of organisms? (*Standards*, Number 12, p. S-9)			X		

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5. The interrelationships among cells, tissues, organs, and organ systems within multicellular organisms? (*Standards*, Number 2, p. S-4)			X		
— Factual inaccuracies, if any, in the preceding section					
H. Viruses To what extent does the textbook include discussions about:					
1. Characteristics of viruses? (*Science Framework Addendum*, p. 27; *Standards*, Number 3, p. S-5)			X		
2. Reproduction of viruses? (*Science Framework Addendum*, p. 27)				X	
3. Human diseases which involve viral pathogens? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12)				X	
— Factual inaccuracies, if any, in the preceding section					
I. Monera To what extent does the textbook include discussions about:					
1. The major groups of monera? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5)			X		
2. The types of diseases produced by certain monera? (*Science Framework Addendum*, p. 27)			X		
3. Reproduction in monera? (*Science Framework Addendum*, p. 26)				X	
4. STIS issues; e.g., food production, waste disposal, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)			X		
— Factual inaccuracies, if any, in the preceding section					

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
J. Protists To what extent does the textbook include discussions about: 1. The major groups of protists? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5)			X		
2. Diseases caused by protists? (*Science Framework Addendum*, p. 27)				X	
3. Reproduction in protists? (*Science Framework Addendum*, p. 26)				X	
4. STIS issues; e.g., food production, waste disposal, industrial products, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)				X	

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K. Fungi To what extent does the textbook include discussions about: 1. The major groups of fungi? (*Science Framework Addendum*, pp. 14–15, 27; *Standards*, Number 3, p. S-5)			X		
2. Diseases caused by fungi; e.g., athlete's foot, ringworm, yeast infection, smuts, and rusts? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5)					X
3. Asexual and sexual reproduction in fungi? (*Science Framework Addendum*, p. 26)			X		
4. STIS issues; e.g., food (toxic mushrooms), beverages, or antibiotics? (*Science Framework Addendum*, p. 26; *Standards*, Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					
L. Plants To what extent does the textbook include discussions about: 1. Classification of plants into groups? (*Standards*, Number 4, p. S-5)		X			
2. The structures and the functions of the parts of plants? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8, and Number 11, p. S-9)		X			
3. Response to stimuli? (*Science Framework Addendum*, p. 24)				X	
4. Plant adaptations? (*Science Framework Addendum*, pp. 18, 22, and 24)		X			
5. Asexual and sexual reproduction in plants? (*Standards*, Number 13, p. S-10)		X			

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I. LIFE SCIENCE: CONTENT (STUDENT'S EDITION)—Continued

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
L. Plants—Continued					
6. STIS issues; e.g., the useful applications of plants and plant products? (*Science Framework Addendum*, p. 25; *Standards*, Number 10, p. S-8, Number 16, p. S-11, and Number 17, p. S-12)			X		
— Factual inaccuracies, if any, in the preceding section					
M. Animals To what extent does the textbook include discussions about: 1. Invertebrates a. Descriptions of the major phyla; e.g., porifera, coelenterates, worms, mollusks, echinoderms, and arthropods? (*Science Framework Addendum*, pp. 29–30)	X				

b. Structure and function of organs and systems? (*Science Framework Addendum*, pp. 28–29)	X				
c. Growth and development? (*Science Framework Addendum*, pp. 30–31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10)			X		
d. Reproduction, including sexual and asexual? (*Science Framework Addendum*, p. 30; *Standards*, Number 13, p. S-10)	X				
e. Behavior; e.g., social and reproductive? (*Standards*, Number 5, p. S-6)			X		
f. STIS issues; e.g., agriculture, food, pests, and aquaculture? (*Standards*, Number 17, p. S-12)		X			
2. Vertebrates (Nonhuman) a. Description of major classes of chordates; e.g., fish, amphibians, reptiles, birds, and mammals? (*Science Framework Addendum*, p. 29)		X			
b. Structure and functions of organs and systems? (*Science Framework Addendum*, pp. 28, 30; *Standards*, Number 7, p. S-7, and Number 9, p. S-8)			X		
c. Growth, development, and embryology? (*Science Framework Addendum*, p. 31)			X		
d. Sexual reproduction? (*Standards*, Number 13, p. S-10)			X		
e. Behavior; e.g., social and reproductive? (*Standards*, Number 5, p. S-10)		X			
f. STIS issues; e.g., wildlife management? (*Science Framework Addendum*, p. 13; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)		X			

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
M. Animals—Continued					
3. Vertebrates (Human)					
a. Structure, function, and maintenance of major body systems:					
(1) Nervous system and sense organs?		X			
(2) Circulatory system?		X			
(3) Digestive system?		X			
(4) Respiratory system?		X			
(5) Reproductive system?			X		
(6) Musculoskeletal system?		X			

(7) Excretory system?			X		
(8) Integumentary system?			X		
(9) Endocrine system? (*Science Framework Addendum*, p. 33; *Standards*, Number 7, p. S-7)			X		
b. Growth, development, and embryology? (*Science Framework Addendum*, p. 34; *Standards*, Number 7 and Number 8, p. S-7)			X		
c. Behavior; e.g., innate compared with learned? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 5 and Number 6, p. S-6)			X		
d. Transmission, symptoms, and prevention of STDs? (*Standards*, Number 17, p. S-12)					X
e. STIS issues; e.g., genetic counseling, noncommunicable diseases, environmental issues, and substance abuse? (*Science Framework Addendum*, pp. 12–13, 31, 37; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)		X			
____ Factual inaccuracies, if any, in the preceding section					

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II. LIFE SCIENCE: PROCESS SKILLS (STUDENT'S EDITION)

DESCRIPTIONS OF PROCESSES*

OBSERVING

- Seeing
- Hearing
- Feeling
- Tasting
- Smelling

The main route to knowledge is through observing, using all the senses. This process is a distinct one by which people come to know about the characteristics of objects and their interactions.

COMMUNICATING

- Silent
- Oral
- Written
- Pictorial

Objects are named and events are described by people so that they can tell others about them. Communicating is a fundamental human process that enables one to learn more about a greater range of information than could be learned without this process.

COMPARING

- Sensory comparisons
- Relative positive comparisons
- Linear comparisons
- Weight comparisons
- Capacity comparisons
- Quantity comparisons

Comparing is a distinct process by which people systematically examine objects and events in terms of similarities and differences. By comparing the known to something unknown, one gains knowledge about the unknown. All measurements are forms of comparing.

ORGANIZING

- Data gathering
- Sequencing
- Grouping
- Classifying

Knowledge of principles and laws is gained only through the systematic compiling, classifying, and ordering of observed and compared data. Bodies of knowledge grow from long-term organizing processes.

RELATING

- Using space-time relationships
- Formulating experimental hypotheses
- Controlling and manipulating variables
- Experimenting

Relating is a process by which concrete and abstract ideas are woven together to test or explain phenomena. Hypothetical-deductive reasoning, coordinate graphing, the managing of variables, and the comparison of effects of one variable on another contribute to the attainment of the major concepts of science.

INFERRING

- Synthesizing, analyzing
- Generalizing
- Recognizing and predicting patterns; stating laws
- Formulating explanatory models and theorizing

The process of realizing ideas that are *not* directly observable is the process of inferring. The process leads to predictive explanations for simple and complex phenomena.

APPLYING

- Using knowledge to solve problems
- Inventing (technology)

Use of knowledge is the applying of knowledge. Inventing, creating, problem solving, and determining probabilities are ways of using information that lead to gaining further information.

**Science Framework Addendum*, pp. 4–5.

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REVIEW OF PROCESS SKILLS[1]

To what extent are the following process skills taught throughout the textbook:	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
1. Observing?	X				
2. Communicating?		X			
3. Comparing?		X			
4. Organizing?			X		
5. Relating?				X	
6. Inferring?				X	
7. Applying?				X	

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[1] *Science Framework Addendum*, p. 5.

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III. LIFE SCIENCE: TEACHER'S EDITION

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the textbook include:				
1. Alternative strategies for organizing the course? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2 and Number 4)		X		
2. A range of suggested instructional activities? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 3)	X			
3. Material that engages students in using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)	X			
4. Varied activities to meet instructional needs of students with different learning styles and interests? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 1)	X			

5. Consideration of the instructional needs of limited-English-proficient students? (*Science Framework Addendum*, p. 103, "General Criteria")				X
6. Identification of process skills related to specific activities? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6 and Number 7)	X			
7. Instructional activities that integrate knowledge and skills learned in other disciplines; e.g., mathematics or history? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		
8. Suggestions for structuring group instruction; e.g., cooperative learning? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2)				X
9. A listing of additional resources for extended and in-depth supplemental activities? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 3)				X
10. A variety of assessment techniques; e.g., number and types of questions such as essay, definitions, and discussion? (*Science Framework Addendum*, p. 104, "Assessment and Evaluation," Number 1 and Number 2)				X

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IV. LIFE SCIENCE: STUDENT'S LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. To what extent does the student's laboratory manual include:				
1. Experiences that reinforce the major concepts covered in the student's edition? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)	X			
2. Directions for laboratory setup, procedures, and data reporting related to the laboratory experiences? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8)	X			
3. Information that emphasizes safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9)	X			
4. Assignments that integrate knowledge and skills learned in other disciplines; e.g., reading and writing? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		

5. Assignments that guide students toward using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
6. Information that promotes sensitivity to the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)				X
B. To what extent are the following process skills taught throughout the laboratory manual:* 1. Observing?	X			
2. Communicating?	X			
3. Comparing?	X			
4. Organizing?		X		
5. Relating?			X	
6. Inferring?			X	
7. Applying?			X	

**Science Framework Addendum*, p. 5 and p. 104, "Content and Process," Number 7.

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V. LIFE SCIENCE: TEACHER'S EDITION OF THE LABORATORY MANUAL

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To what extent does the teacher's edition of the laboratory manual include:				
1. Information that encourages the shared responsibility for safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9; "Teachers' Materials," Number 9)	X			
2. Opportunities to demonstrate the interrelatedness of scientific information and process skills? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)		X		
3. Material which guides students to use higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)				X
4. Opportunities to integrate knowledge and skills from other disciplines; e.g., writing of laboratory reports? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)				X

5. Instructional alternatives as appropriate and necessary? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 4)				X
6. Resource lists for acquiring: a. Equipment?		X		
b. Chemicals?		X		
c. Supplies?		X		
d. Preserved and living specimens? (*Science Framework Addendum*, p. 104, "Teachers' Materials," Number 2)		X		
7. Necessary solutions and recipes? (*Science Framework Addendum*, pp. 104–105, "Teachers' Materials," Number 2)	X			
8. Information on the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)		X		
9. List of supplemental materials and resources? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 2f)				X
10. Information about outdoor biology fieldwork? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 7)				X

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I. LIFE SCIENCE: CONTENT (STUDENT'S EDITION)

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. Nature of Science To what extent does the textbook include discussions about: 1. The characteristics of living things; e.g., reproduction and growth? (*Science Framework Addendum*, p. 14)			X		
2. The "scientific method"; e.g., observation, hypothesis, and experimentation? (*Science Framework Addendum*, pp. 8, 12; *Standards*,* p. S-1)		X			
3. Science, Technology, Individuals, and Society (STIS) issues: life science in everyday life; e.g., health, ethical concerns, and careers? (*Science Framework Addendum*, p. 13)			X		
___ Factual inaccuracies, if any, in the preceding section†					

B. Ecology To what extent does the textbook include discussions about: 1. Biotic and abiotic interrelationships; e.g., chains, cycles (such as carbon, nitrogen, and water), and symbiotic relationships? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11)		X			
2. Levels of ecological organization; e.g., populations, communities, and biomes? (*Science Framework Addendum*, p. 39; *Standards*, Number 4, p. S-5, and Number 16, p. S-11)		X			
3. Structure of and energy flow through the ecosystem; e.g., producers, consumers, decomposers, and energy pyramids? (*Science Framework Addendum*, p. 40)		X			
4. STIS issues: conservation and the impact of society on the natural environment; e.g., pollution, endangered species, resource depletion, and recycling? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11)	X				
___ Factual inaccuracies, if any, in the preceding section					
C. Heredity To what extent does the textbook include discussions about: 1. Mendelian genetics? (*Science Framework Addendum*, p. 17; *Standards*, Number 14, p. S-10)			X		
2. The concept of passing of genetic traits from parent to offspring; e.g., family pedigree? (*Standards*, Number 14, p. S-10)			X		
3. Genetic diseases; e.g., hemophilia, Down's syndrome, cystic fibrosis, or sickle-cell anemia? (*Standards*, Number 12, p. S-9)			X		

NOTE: The secondary life science textbook review instrument is correlated with the following resource documents:

- The *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve* is cited as *Science Framework Addendum.*
- **Model Curriculum Standards: Grades Nine Through Twelve* is cited as *Standards.*

These documents are published by the California State Department of Education. (See pages 403 and 404 for ordering information).

†A factual inaccuracy was noted in this section. The publisher has given assurances that the inaccuracy will be corrected in the next edition of this book. For more information see "Factual Inaccuracies" on page xii.

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
C. Heredity—Continued					
4. STIS issues; e.g., the benefits and problems of genetic engineering? (*Science Framework Addendum*, pp. 19–20)			X		
— Factual inaccuracies, if any, in the preceding section					
D. Evolution To what extent does the textbook include discussions about:					
1. The factual basis for evolution; e.g., anatomical evidence and fossil records? (*Standards*, Number 15, p. S-11)			X		
2. Human evolution? (*Science Framework Addendum*, p. 35)					X

3. The mechanisms of evolution; e.g., mutation, selection, speciation, adaptation, and extinction? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11)		X			
___ Factual inaccuracies, if any, in the preceding section					
E. Classification					
To what extent does the textbook include discussions about:					
1. The historical development of systems of classification; e.g., Aristotle and Linnaeus? (*Standards*, p. S-1, Number 3, p. S-5)			X		
2. Identification and description of the five kingdom system of classifying living things? (*Science Framework Addendum*, p. 14)			X		
___ Factual inaccuracies, if any, in the preceding section					
F. Energy Processes					
To what extent does the textbook include discussions about:					
1. The chemical basis of life; e.g., atoms, molecules, bonds, and reactions? (*Science Framework Addendum*, p. 24)			X		
2. Human nutrition as related to everyday diet; e.g., food, vitamins, water, and minerals? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 8, p. S-7)		X			
3. Cellular respiration? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4, and Number 4, p. S-5)				X	
4. Photosynthesis? (*Science Framework Addendum*, p. 24; *Standards*, Number 11, p. S-9)			X		
5. The conversion of matter and energy as it applies to living systems; e.g., conservation of energy and matter? (*Science Framework Addendum*, p. 24; *Standards*, Number 1, p. S-4)		X			
___ Factual inaccuracies, if any, in the preceding section					

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
G. Cells, Tissues, Organs, and Organ Systems To what extent does the textbook include discussions about:					
1. A historical perspective; e.g., Hook, Schleiden, Schwann, and Virchow? (*Standards*, Number 12, Activity Number 3, p. S-9)			X		
2. The structures and functions of cells and cell components, including the similarities and differences between plant and animal cells? (*Standards*, Number 1, p. S-4, and Number 12, p. S-9)		X			
3. The cell cycle, including mitosis and meiosis? (*Standards*, Number 12, p. S-9)			X		
4. The structure and function of DNA and RNA in cell replication and in the reproduction of organisms? (*Standards*, Number 12, p. S-9)					X

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5. The interrelationships among cells, tissues, organs, and organ systems within multicellular organisms? (*Standards*, Number 2, p. S-4)			X		
___ Factual inaccuracies, if any, in the preceding section					
H. Viruses To what extent does the textbook include discussions about: 1. Characteristics of viruses? (*Science Framework Addendum*, p. 27; *Standards*, Number 3, p. S-5)			X		
2. Reproduction of viruses? (*Science Framework Addendum*, p. 27)				X	
3. Human diseases which involve viral pathogens? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					
I. Monera To what extent does the textbook include discussions about: 1. The major groups of monera? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5)			X		
2. The types of diseases produced by certain monera? (*Science Framework Addendum*, p. 27)		X			
3. Reproduction in monera? (*Science Framework Addendum*, p. 26)				X	
4. STIS issues; e.g., food production, waste disposal, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)	X				
___ Factual inaccuracies, if any, in the preceding section					

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
J. Protists To what extent does the textbook include discussions about: 1. The major groups of protists? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5)		X			
2. Diseases caused by protists? (*Science Framework Addendum*, p. 27)				X	
3. Reproduction in protists? (*Science Framework Addendum*, p. 26)				X	
4. STIS issues; e.g., food production, waste disposal, industrial products, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)			X		

___ Factual inaccuracies, if any, in the preceding section					
K. Fungi To what extent does the textbook include discussions about: 1. The major groups of fungi? (*Science Framework Addendum*, pp. 14–15, 27; *Standards*, Number 3, p. S-5)			X		
2. Diseases caused by fungi; e.g., athlete's foot, ringworm, yeast infection, smuts, and rusts? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5)			X		
3. Asexual and sexual reproduction in fungi? (*Science Framework Addendum*, p. 26)				X	
4. STIS issues; e.g., food (toxic mushrooms), beverages, or antibiotics? (*Science Framework Addendum*, p. 26; *Standards*, Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					
L. Plants To what extent does the textbook include discussions about: 1. Classification of plants into groups? (*Standards*, Number 4, p. S-5)		X			
2. The structures and the functions of the parts of plants? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8, and Number 11, p. S-9)		X			
3. Response to stimuli? (*Science Framework Addendum*, p. 24)				X	
4. Plant adaptations? (*Science Framework Addendum*, pp. 18, 22, and 24)		X			
5. Asexual and sexual reproduction in plants? (*Standards*, Number 13, p. S-10)		X			

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
L. Plants—Continued					
6. STIS issues; e.g., the useful applications of plants and plant products? (*Science Framework Addendum*, p. 25; *Standards*, Number 10, p. S-8, Number 16, p. S-11, and Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					
M. Animals					
To what extent does the textbook include discussions about:					
1. Invertebrates					
a. Descriptions of the major phyla; e.g., porifera, coelenterates, worms, mollusks, echinoderms, and arthropods? (*Science Framework Addendum*, pp. 29–30)		X			

b. Structure and function of organs and systems? (*Science Framework Addendum*, pp. 28–29)		X			
c. Growth and development? (*Science Framework Addendum*, pp. 30–31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10)		X			
d. Reproduction, including sexual and asexual? (*Science Framework Addendum*, p. 30; *Standards*, Number 13, p. S-10)		X			
e. Behavior; e.g., social and reproductive? (*Standards*, Number 5, p. S-6)				X	
f. STIS issues; e.g., agriculture, food, pests, and aquaculture? (*Standards*, Number 17, p. S-12)			X		
2. Vertebrates (Nonhuman) a. Description of major classes of chordates; e.g., fish, amphibians, reptiles, birds, and mammals? (*Science Framework Addendum*, p. 29)		X			
b. Structure and functions of organs and systems? (*Science Framework Addendum*, pp. 28, 30; *Standards*, Number 7, p. S-7, and Number 9, p. S-8)		X			
c. Growth, development, and embryology? (*Science Framework Addendum*, p. 31)		X			
d. Sexual reproduction? (*Standards*, Number 13, p. S-10)			X		
e. Behavior; e.g., social and reproductive? (*Standards*, Number 5, p. S-10)			X		
f. STIS issues; e.g., wildlife management? (*Science Framework Addendum*, p. 13; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)				X	

I. LIFE SCIENCE: CONTENT (STUDENT'S EDITION)—Continued

DEFINITION OF TERMS

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
M. Animals—Continued					
3. Vertebrates (Human)					
a. Structure, function, and maintenance of major body systems:					
(1) Nervous system and sense organs?		X			
(2) Circulatory system?		X			
(3) Digestive system?		X			
(4) Respiratory system?			X		
(5) Reproductive system?			X		
(6) Musculoskeletal system?		X			

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(7) Excretory system?		X			
(8) Integumentary system?				X	
(9) Endocrine system? (*Science Framework Addendum*, p. 33; *Standards*, Number 7, p. S-7)			X		
b. Growth, development, and embryology? (*Science Framework Addendum*, p. 34; *Standards*, Number 7 and Number 8, p. S-7)			X		
c. Behavior; e.g., innate compared with learned? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 5 and Number 6, p. S-6)					X
d. Transmission, symptoms, and prevention of STDs? (*Standards*, Number 17, p. S-12)					X
e. STIS issues; e.g., genetic counseling, noncommunicable diseases, environmental issues, and substance abuse? (*Science Framework Addendum*, pp. 12–13, 31, 37; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)	X				
____ Factual inaccuracies, if any, in the preceding section					

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II. LIFE SCIENCE: PROCESS SKILLS (STUDENT'S EDITION)

DESCRIPTIONS OF PROCESSES*

OBSERVING
- Seeing
- Hearing
- Feeling
- Tasting
- Smelling

The main route to knowledge is through observing, using all the senses. This process is a distinct one by which people come to know about the characteristics of objects and their interactions.

COMMUNICATING
- Silent
- Oral
- Written
- Pictorial

Objects are named and events are described by people so that they can tell others about them. Communicating is a fundamental human process that enables one to learn more about a greater range of information than could be learned without this process.

COMPARING
- Sensory comparisons
- Relative positive comparisons
- Linear comparisons
- Weight comparisons
- Capacity comparisons
- Quantity comparisons

Comparing is a distinct process by which people systematically examine objects and events in terms of similarities and differences. By comparing the known to something unknown, one gains knowledge about the unknown. All measurements are forms of comparing.

ORGANIZING
- Data gathering
- Sequencing
- Grouping
- Classifying

Knowledge of principles and laws is gained only through the systematic compiling, classifying, and ordering of observed and compared data. Bodies of knowledge grow from long-term organizing processes.

RELATING
- Using space-time relationships
- Formulating experimental hypotheses
- Controlling and manipulating variables
- Experimenting

Relating is a process by which concrete and abstract ideas are woven together to test or explain phenomena. Hypothetical-deductive reasoning, coordinate graphing, the managing of variables, and the comparison of effects of one variable on another contribute to the attainment of the major concepts of science.

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INFERRING

- Synthesizing, analyzing
- Generalizing
- Recognizing and predicting patterns; stating laws
- Formulating explanatory models and theorizing

The process of realizing ideas that are *not* directly observable is the process of inferring. The process leads to predictive explanations for simple and complex phenomena.

APPLYING

- Using knowledge to solve problems
- Inventing (technology)

Use of knowledge is the applying of knowledge. Inventing, creating, problem solving, and determining probabilities are ways of using information that lead to gaining further information.

**Science Framework Addendum*, pp. 4–5.

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REVIEW OF PROCESS SKILLS[1]

To what extent are the following process skills taught throughout the textbook:	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
1. Observing?	X				
2. Communicating?	X				
3. Comparing?	X				
4. Organizing?	X				
5. Relating?			X		
6. Inferring?			X		
7. Applying?			X		

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[1] *Science Framework Addendum*, p. 5.

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III. LIFE SCIENCE: TEACHER'S EDITION

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the textbook include: 1. Alternative strategies for organizing the course? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2 and Number 4)			X	
2. A range of suggested instructional activities? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 3)	X			
3. Material that engages students in using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)	X			
4. Varied activities to meet instructional needs of students with different learning styles and interests? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 1)	X			

5. Consideration of the instructional needs of limited-English-proficient students? (*Science Framework Addendum*, p. 103, "General Criteria")				X
6. Identification of process skills related to specific activities? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6 and Number 7)	X			
7. Instructional activities that integrate knowledge and skills learned in other disciplines; e.g., mathematics or history? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)			X	
8. Suggestions for structuring group instruction; e.g., cooperative learning? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2)				X
9. A listing of additional resources for extended and in-depth supplemental activities? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 3)	X			
10. A variety of assessment techniques; e.g., number and types of questions such as essay, definitions, and discussion? (*Science Framework Addendum*, p. 104, "Assessment and Evaluation," Number 1 and Number 2)				X

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IV. LIFE SCIENCE: STUDENT'S LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. To what extent does the student's laboratory manual include: 1. Experiences that reinforce the major concepts covered in the student's edition? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)		X		
2. Directions for laboratory setup, procedures, and data reporting related to the laboratory experiences? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8)	X			
3. Information that emphasizes safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9)	X			
4. Assignments that integrate knowledge and skills learned in other disciplines; e.g., reading and writing? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)	X			

5. Assignments that guide students toward using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)	X			
6. Information that promotes sensitivity to the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)			X	
B. To what extent are the following process skills taught throughout the laboratory manual:*				
1. Observing?	X			
2. Communicating?		X		
3. Comparing?	X			
4. Organizing?	X			
5. Relating?	X			
6. Inferring?		X		
7. Applying?			X	

**Science Framework Addendum*, p. 5 and p. 104, "Content and Process," Number 7.

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V. LIFE SCIENCE: TEACHER'S EDITION OF THE LABORATORY MANUAL

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To what extent does the teacher's edition of the laboratory manual include:				
1. Information that encourages the shared responsibility for safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9; "Teachers' Materials," Number 9)		X		
2. Opportunities to demonstrate the interrelatedness of scientific information and process skills? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)				X
3. Material which guides students to use higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
4. Opportunities to integrate knowledge and skills from other disciplines; e.g., writing of laboratory reports? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)			X	

5. Instructional alternatives as appropriate and necessary? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 4)	X			
6. Resource lists for acquiring: a. Equipment?			X	
b. Chemicals?			X	
c. Supplies?			X	
d. Preserved and living specimens? (*Science Framework Addendum*, p. 104, "Teachers' Materials," Number 2)			X	
7. Necessary solutions and recipes? (*Science Framework Addendum*, pp. 104–105, "Teachers' Materials," Number 2)	X			
8. Information on the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)			X	
9. List of supplemental materials and resources? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 2f)		X		
10. Information about outdoor biology fieldwork? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 7)			X	

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I. LIFE SCIENCE: CONTENT (STUDENT'S EDITION)

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. Nature of Science To what extent does the textbook include discussions about: 1. The characteristics of living things; e.g., reproduction and growth? (*Science Framework Addendum*, p. 14)				X	
2. The "scientific method"; e.g., observation, hypothesis, and experimentation? (*Science Framework Addendum*, pp. 8, 12; *Standards*,[*] p. S-1)	X				
3. Science, Technology, Individuals, and Society (STIS) issues: life science in everyday life; e.g., health, ethical concerns, and careers? (*Science Framework Addendum*, p. 13)			X		
___ Factual inaccuracies, if any, in the preceding section[†]					

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B. Ecology To what extent does the textbook include discussions about: 1. Biotic and abiotic interrelationships; e.g., chains, cycles (such as carbon, nitrogen, and water), and symbiotic relationships? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11)		X			
2. Levels of ecological organization; e.g., populations, communities, and biomes? (*Science Framework Addendum*, p. 39; *Standards*, Number 4, p. S-5, and Number 16, p. S-11)		X			
3. Structure of and energy flow through the ecosystem; e.g., producers, consumers, decomposers, and energy pyramids? (*Science Framework Addendum*, p. 40)			X		
4. STIS issues: conservation and the impact of society on the natural environment; e.g., pollution, endangered species, resource depletion, and recycling? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11)			X		
__ Factual inaccuracies, if any, in the preceding section					
C. Heredity To what extent does the textbook include discussions about: 1. Mendelian genetics? (*Science Framework Addendum*, p. 17; *Standards*, Number 14, p. S-10)		X			
2. The concept of passing of genetic traits from parent to offspring; e.g., family pedigree? (*Standards*, Number 14, p. S-10)		X			
3. Genetic diseases; e.g., hemophilia, Down's syndrome, cystic fibrosis, or sickle-cell anemia? (*Standards*, Number 12, p. S-9)				X	

NOTE: The secondary life science textbook review instrument is correlated with the following resource documents:

- The *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve* is cited as *Science Framework Addendum*.
- **Model Curriculum Standards: Grades Nine Through Twelve* is cited as *Standards*.

These documents are published by the California State Department of Education. (See pages 403 and 404 for ordering information).

[†] A factual inaccuracy was noted in this section. The publisher has given assurances that the inaccuracy will be corrected in the next edition of this book. For more information see "Factual Inaccuracies" on page xii.

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
C. Heredity—Continued					
4. STIS issues; e.g., the benefits and problems of genetic engineering? (*Science Framework Addendum*, pp. 19–20)					X
— Factual inaccuracies, if any, in the preceding section					
D. Evolution To what extent does the textbook include discussions about:					
1. The factual basis for evolution; e.g., anatomical evidence and fossil records? (*Standards*, Number 15, p. S-11)				X	
2. Human evolution? (*Science Framework Addendum*, p. 35)					X

3. The mechanisms of evolution; e.g., mutation, selection, speciation, adaptation, and extinction? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11)			X		
___ Factual inaccuracies, if any, in the preceding section					
E. Classification To what extent does the textbook include discussions about: 1. The historical development of systems of classification; e.g., Aristotle and Linnaeus? (*Standards*, p. S-1, Number 3, p. S-5)					X
2. Identification and description of the five kingdom system of classifying living things? (*Science Framework Addendum*, p. 14)			X		
___ Factual inaccuracies, if any, in the preceding section					
F. Energy Processes To what extent does the textbook include discussions about: 1. The chemical basis of life; e.g., atoms, molecules, bonds, and reactions? (*Science Framework Addendum*, p. 24)				X	
2. Human nutrition as related to everyday diet; e.g., food, vitamins, water, and minerals? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 8, p. S-7)				X	
3. Cellular respiration? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4, and Number 4, p. S-5)				X	
4. Photosynthesis? (*Science Framework Addendum*, p. 24; *Standards*, Number 11, p. S-9)			X		
5. The conversion of matter and energy as it applies to living systems; e.g., conservation of energy and matter? (*Science Framework Addendum*, p. 24; *Standards*, Number 1, p. S-4)			X		
___ Factual inaccuracies, if any, in the preceding section					

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G. Cells, Tissues, Organs, and Organ Systems To what extent does the textbook include discussions about: 1. A historical perspective; e.g., Hook, Schleiden, Schwann, and Virchow? (*Standards*, Number 12, Activity Number 3, p. S-9)				X	
2. The structures and functions of cells and cell components, including the similarities and differences between plant and animal cells? (*Standards*, Number 1, p. S-4, and Number 12, p. S-9)			X		
3. The cell cycle, including mitosis and meiosis? (*Standards*, Number 12, p. S-9)				X	
4. The structure and function of DNA and RNA in cell replication and in the reproduction of organisms? (*Standards*, Number 12, p. S-9)					X

5. The interrelationships among cells, tissues, organs, and organ systems within multicellular organisms? (*Standards*, Number 2, p. S-4)					X
— Factual inaccuracies, if any, in the preceding section					
H. Viruses To what extent does the textbook include discussions about:					
1. Characteristics of viruses? (*Science Framework Addendum*, p. 27; *Standards*, Number 3, p. S-5)					X
2. Reproduction of viruses? (*Science Framework Addendum*, p. 27)					X
3. Human diseases which involve viral pathogens? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12)					X
— Factual inaccuracies, if any, in the preceding section					
I. Monera To what extent does the textbook include discussions about:					
1. The major groups of monera? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5)				X	
2. The types of diseases produced by certain monera? (*Science Framework Addendum*, p. 27)					X
3. Reproduction in monera? (*Science Framework Addendum*, p. 26)					X
4. STIS issues; e.g., food production, waste disposal, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)					X
— Factual inaccuracies, if any, in the preceding section					

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
J. Protists To what extent does the textbook include discussions about:					
1. The major groups of protists? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5)				X	
2. Diseases caused by protists? (*Science Framework Addendum*, p. 27)					X
3. Reproduction in protists? (*Science Framework Addendum*, p. 26)					X
4. STIS issues; e.g., food production, waste disposal, industrial products, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)					X

___ Factual inaccuracies, if any, in the preceding section					
K. Fungi To what extent does the textbook include discussions about: 1. The major groups of fungi? (*Science Framework Addendum*, pp. 14–15, 27; *Standards*, Number 3, p. S-5)				X	
2. Diseases caused by fungi; e.g., athlete's foot, ringworm, yeast infection, smuts, and rusts? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5)					X
3. Asexual and sexual reproduction in fungi? (*Science Framework Addendum*, p. 26)				X	
4. STIS issues; e.g., food (toxic mushrooms), beverages, or antibiotics? (*Science Framework Addendum*, p. 26; *Standards*, Number 17, p. S-12)					X
___ Factual inaccuracies, if any, in the preceding section					
L. Plants To what extent does the textbook include discussions about: 1. Classification of plants into groups? (*Standards*, Number 4, p. S-5)				X	
2. The structures and the functions of the parts of plants? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8, and Number 11, p. S-9)					X
3. Response to stimuli? (*Science Framework Addendum*, p. 24)					X
4. Plant adaptations? (*Science Framework Addendum*, pp. 18, 22, and 24)					X
5. Asexual and sexual reproduction in plants? (*Standards*, Number 13, p. S-10)			X		

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
L. Plants—Continued					
6. STIS issues; e.g., the useful applications of plants and plant products? (*Science Framework Addendum*, p. 25; *Standards*, Number 10, p. S-8, Number 16, p. S-11, and Number 17, p. S-12)					X
— Factual inaccuracies, if any, in the preceding section					
M. Animals					
To what extent does the textbook include discussions about:					
1. Invertebrates					
a. Descriptions of the major phyla; e.g., porifera, coelenterates, worms, mollusks, echinoderms, and arthropods? (*Science Framework Addendum*, pp. 29–30)				X	

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b. Structure and function of organs and systems? (*Science Framework Addendum*, pp. 28–29)					X
c. Growth and development? (*Science Framework Addendum*, pp. 30–31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10)					X
d. Reproduction, including sexual and asexual? (*Science Framework Addendum*, p. 30; *Standards*, Number 13, p. S-10)				X	
e. Behavior; e.g., social and reproductive? (*Standards*, Number 5, p. S-6)					X
f. STIS issues; e.g., agriculture, food, pests, and aquaculture? (*Standards*, Number 17, p. S-12)					X
2. Vertebrates (Nonhuman) a. Description of major classes of chordates; e.g., fish, amphibians, reptiles, birds, and mammals? (*Science Framework Addendum*, p. 29)				X	
b. Structure and functions of organs and systems? (*Science Framework Addendum*, pp. 28, 30; *Standards*, Number 7, p. S-7, and Number 9, p. S-8)					X
c. Growth, development, and embryology? (*Science Framework Addendum*, p. 31)		X			
d. Sexual reproduction? (*Standards*, Number 13, p. S-10)				X	
e. Behavior; e.g., social and reproductive? (*Standards*, Number 5, p. S-10)			X		
f. STIS issues; e.g., wildlife management? (*Science Framework Addendum*, p. 13; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)					X

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
M. Animals—Continued					
3. Vertebrates (Human)					
a. Structure, function, and maintenance of major body systems:					
(1) Nervous system and sense organs?					X
(2) Circulatory system?					X
(3) Digestive system?					X
(4) Respiratory system?					X
(5) Reproductive system?			X		
647 (6) Musculoskeletal system?					X 648

(7) Excretory system?					X
(8) Integumentary system?					X
(9) Endocrine system? (*Science Framework Addendum*, p. 33; *Standards*, Number 7, p. S-7)					X
b. Growth, development, and embryology? (*Science Framework Addendum*, p. 34; *Standards*, Number 7 and Number 8, p. S-7)				X	
c. Behavior; e.g., innate compared with learned? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 5 and Number 6, p. S-6)					X
d. Transmission, symptoms, and prevention of STDs? (*Standards*, Number 17, p. S-12)					X
e. STIS issues; e.g., genetic counseling, noncommunicable diseases, environmental issues, and substance abuse? (*Science Framework Addendum*, pp. 12–13, 31, 37; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					

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II. LIFE SCIENCE: PROCESS SKILLS (STUDENT'S EDITION)

DESCRIPTIONS OF PROCESSES*

OBSERVING

- Seeing
- Hearing
- Feeling
- Tasting
- Smelling

The main route to knowledge is through observing, using all the senses. This process is a distinct one by which people come to know about the characteristics of objects and their interactions.

COMMUNICATING

- Silent
- Oral
- Written
- Pictorial

Objects are named and events are described by people so that they can tell others about them. Communicating is a fundamental human process that enables one to learn more about a greater range of information than could be learned without this process.

COMPARING

- Sensory comparisons
- Relative positive comparisons
- Linear comparisons
- Weight comparisons
- Capacity comparisons
- Quantity comparisons

Comparing is a distinct process by which people systematically examine objects and events in terms of similarities and differences. By comparing the known to something unknown, one gains knowledge about the unknown. All measurements are forms of comparing.

ORGANIZING

- Data gathering
- Sequencing
- Grouping
- Classifying

Knowledge of principles and laws is gained only through the systematic compiling, classifying, and ordering of observed and compared data. Bodies of knowledge grow from long-term organizing processes.

RELATING

- Using space-time relationships
- Formulating experimental hypotheses
- Controlling and manipulating variables
- Experimenting

Relating is a process by which concrete and abstract ideas are woven together to test or explain phenomena. Hypothetical-deductive reasoning, coordinate graphing, the managing of variables, and the comparison of effects of one variable on another contribute to the attainment of the major concepts of science.

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INFERRING

- Synthesizing, analyzing
- Generalizing
- Recognizing and predicting patterns; stating laws
- Formulating explanatory models and theorizing

The process of realizing ideas that are *not* directly observable is the process of inferring. The process leads to predictive explanations for simple and complex phenomena.

APPLYING

- Using knowledge to solve problems
- Inventing (technology)

Use of knowledge is the applying of knowledge. Inventing, creating, problem solving, and determining probabilities are ways of using information that lead to gaining further information.

**Science Framework Addendum*, pp. 4–5.

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REVIEW OF PROCESS SKILLS[1]

To what extent are the following process skills taught throughout the textbook:	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
1. Observing?		X			
2. Communicating?			X		
3. Comparing?		X			
4. Organizing?		X			
5. Relating?			X		
6. Inferring?			X		
7. Applying?				X	

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[1] *Science Framework Addendum*, p. 5.

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III. LIFE SCIENCE: TEACHER'S EDITION

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the textbook include: 1. Alternative strategies for organizing the course? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2 and Number 4)				X
2. A range of suggested instructional activities? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 3)	X			
3. Material that engages students in using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
4. Varied activities to meet instructional needs of students with different learning styles and interests? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 1)		X		

5. Consideration of the instructional needs of limited-English-proficient students? (*Science Framework Addendum*, p. 103, "General Criteria")				X
6. Identification of process skills related to specific activities? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6 and Number 7)			X	
7. Instructional activities that integrate knowledge and skills learned in other disciplines; e.g., mathematics or history? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)			X	
8. Suggestions for structuring group instruction; e.g., cooperative learning? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2)		X		
9. A listing of additional resources for extended and in-depth supplemental activities? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 3)			X	
10. A variety of assessment techniques; e.g., number and types of questions such as essay, definitions, and discussion? (*Science Framework Addendum*, p. 104, "Assessment and Evaluation," Number 1 and Number 2)		X		

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IV. LIFE SCIENCE: STUDENT'S LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. To what extent does the student's laboratory manual include:				
1. Experiences that reinforce the major concepts covered in the student's edition? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)	X			
2. Directions for laboratory setup, procedures, and data reporting related to the laboratory experiences? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8)	X			
3. Information that emphasizes safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9)			X	
4. Assignments that integrate knowledge and skills learned in other disciplines; e.g., reading and writing? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)			X	

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5. Assignments that guide students toward using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
6. Information that promotes sensitivity to the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)				X
B. To what extent are the following process skills taught throughout the laboratory manual:* 1. Observing?	X			
2. Communicating?			X	
3. Comparing?	X			
4. Organizing?		X		
5. Relating?		X		
6. Inferring?		X		
7. Applying?			X	

**Science Framework Addendum*, p. 5 and p. 104, "Content and Process," Number 7.

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V. LIFE SCIENCE: TEACHER'S EDITION OF THE LABORATORY MANUAL

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To what extent does the teacher's edition of the laboratory manual include:				
1. Information that encourages the shared responsibility for safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9; "Teachers' Materials," Number 9)			X	
2. Opportunities to demonstrate the interrelatedness of scientific information and process skills? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)	X			
3. Material which guides students to use higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
4. Opportunities to integrate knowledge and skills from other disciplines; e.g., writing of laboratory reports? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)			X	

5. Instructional alternatives as appropriate and necessary? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 4)		X		
6. Resource lists for acquiring: a. Equipment?		X		
b. Chemicals?		X		
c. Supplies?		X		
d. Preserved and living specimens? (*Science Framework Addendum*, p. 104, "Teachers' Materials," Number 2)		X		
7. Necessary solutions and recipes? (*Science Framework Addendum*, pp. 104–105, "Teachers' Materials," Number 2)				X
8. Information on the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)				X
9. List of supplemental materials and resources? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 2f)		X		
10. Information about outdoor biology fieldwork? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 7)		X		

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I. LIFE SCIENCE: CONTENT (STUDENT'S EDITION)

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. Nature of Science To what extent does the textbook include discussions about: 1. The characteristics of living things; e.g., reproduction and growth? (*Science Framework Addendum*, p. 14)			X		
2. The "scientific method"; e.g., observation, hypothesis, and experimentation? (*Science Framework Addendum*, pp. 8, 12; *Standards*,* p. S-1)		X			
3. Science, Technology, Individuals, and Society (STIS) issues: life science in everyday life; e.g., health, ethical concerns, and careers? (*Science Framework Addendum*, p. 13)	X				
___ Factual inaccuracies, if any, in the preceding section†					

B. Ecology To what extent does the textbook include discussions about: 1. Biotic and abiotic interrelationships; e.g., chains, cycles (such as carbon, nitrogen, and water), and symbiotic relationships? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11)		X			
2. Levels of ecological organization; e.g., populations, communities, and biomes? (*Science Framework Addendum*, p. 39; *Standards*, Number 4, p. S-5, and Number 16, p. S-11)			X		
3. Structure of and energy flow through the ecosystem; e.g., producers, consumers, decomposers, and energy pyramids? (*Science Framework Addendum*, p. 40)			X		
4. STIS issues: conservation and the impact of society on the natural environment; e.g., pollution, endangered species, resource depletion, and recycling? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11)		X			
__ Factual inaccuracies, if any, in the preceding section					
C. Heredity To what extent does the textbook include discussions about: 1. Mendelian genetics? (*Science Framework Addendum*, p. 17; *Standards*, Number 14, p. S-10)			X		
2. The concept of passing of genetic traits from parent to offspring; e.g., family pedigree? (*Standards*, Number 14, p. S-10)			X		
3. Genetic diseases; e.g., hemophilia, Down's syndrome, cystic fibrosis, or sickle-cell anemia? (*Standards*, Number 12, p. S-9)		X			

NOTE: The secondary life science textbook review instrument is correlated with the following resource documents:
- The *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve* is cited as *Science Framework Addendum*.
- **Model Curriculum Standards: Grades Nine Through Twelve* is cited as *Standards*.

These documents are published by the California State Department of Education. (See pages 403 and 404 for ordering information).

[1] A factual inaccuracy was noted in this section. The publisher has given assurances that the inaccuracy will be corrected in the next edition of this book. For more information see "Factual Inaccuracies" on page xii.

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
C. Heredity—Continued					
4. STIS issues; e.g., the benefits and problems of genetic engineering? (*Science Framework Addendum*, pp. 19–20)			X		
— Factual inaccuracies, if any, in the preceding section					
D. Evolution To what extent does the textbook include discussions about: 1. The factual basis for evolution; e.g., anatomical evidence and fossil records? (*Standards*, Number 15, p. S-11)		X			
2. Human evolution? (*Science Framework Addendum*, p. 35)					X

3. The mechanisms of evolution; e.g., mutation, selection, speciation, adaptation, and extinction? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11)			X		
___ Factual inaccuracies, if any, in the preceding section					
E. Classification To what extent does the textbook include discussions about: 1. The historical development of systems of classification; e.g., Aristotle and Linnaeus? (*Standards*, p. S-1, Number 3, p. S-5)			X		
2. Identification and description of the five kingdom system of classifying living things? (*Science Framework Addendum*, p. 14)			X		
___ Factual inaccuracies, if any, in the preceding section					
F. Energy Processes To what extent does the textbook include discussions about: 1. The chemical basis of life; e.g., atoms, molecules, bonds, and reactions? (*Science Framework Addendum*, p. 24)				X	
2. Human nutrition as related to everyday diet; e.g., food, vitamins, water, and minerals? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 8, p. S-7)		X			
3. Cellular respiration? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4, and Number 4, p. S-5)				X	
4. Photosynthesis? (*Science Framework Addendum*, p. 24; *Standards*, Number 11, p. S-9)			X		
5. The conversion of matter and energy as it applies to living systems; e.g., conservation of energy and matter? (*Science Framework Addendum*, p. 24; *Standards*, Number 1, p. S-4)			X		
___ Factual inaccuracies, if any, in the preceding section					

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G. Cells, Tissues, Organs, and Organ Systems To what extent does the textbook include discussions about:					
1. A historical perspective; e.g., Hook, Schleiden, Schwann, and Virchow? (*Standards*, Number 12, Activity Number 3, p. S-9)			X		
2. The structures and functions of cells and cell components, including the similarities and differences between plant and animal cells? (*Standards*, Number 1, p. S-4, and Number 12, p. S-9)		X			
3. The cell cycle, including mitosis and meiosis? (*Standards*, Number 12, p. S-9)	X				
4. The structure and function of DNA and RNA in cell replication and in the reproduction of organisms? (*Standards*, Number 12, p. S-9)		X			

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5. The interrelationships among cells, tissues, organs, and organ systems within multicellular organisms? (*Standards*, Number 2, p. S-4)			X		
___ Factual inaccuracies, if any, in the preceding section					
H. Viruses To what extent does the textbook include discussions about: 1. Characteristics of viruses? (*Science Framework Addendum*, p. 27; *Standards*, Number 3, p. S-5)			X		
2. Reproduction of viruses? (*Science Framework Addendum*, p. 27)				X	
3. Human diseases which involve viral pathogens? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					
I. Monera To what extent does the textbook include discussions about: 1. The major groups of monera? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5)			X		
2. The types of diseases produced by certain monera? (*Science Framework Addendum*, p. 27)			X		
3. Reproduction in monera? (*Science Framework Addendum*, p. 26)				X	
4. STIS issues; e.g., food production, waste disposal, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					

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J. Protists To what extent does the textbook include discussions about: 1. The major groups of protists? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5)		X			
2. Diseases caused by protists? (*Science Framework Addendum*, p. 27)				X	
3. Reproduction in protists? (*Science Framework Addendum*, p. 26)				X	
4. STIS issues; e.g., food production, waste disposal, industrial products, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)				X	

___ Factual inaccuracies, if any, in the preceding section					
K. Fungi					
To what extent does the textbook include discussions about:					
1. The major groups of fungi? (*Science Framework Addendum*, pp. 14–15, 27; *Standards*, Number 3, p. S-5)			X		
2. Diseases caused by fungi; e.g., athlete's foot, ringworm, yeast infection, smuts, and rusts? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5)			X		
3. Asexual and sexual reproduction in fungi? (*Science Framework Addendum*, p. 26)			X		
4. STIS issues; e.g., food (toxic mushrooms), beverages, or antibiotics? (*Science Framework Addendum*, p. 26; *Standards*, Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					
L. Plants					
To what extent does the textbook include discussions about:					
1. Classification of plants into groups? (*Standards*, Number 4, p. S-5)		X			
2. The structures and the functions of the parts of plants? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8, and Number 11, p. S-9)	X				
3. Response to stimuli? (*Science Framework Addendum*, p. 24)		X			
4. Plant adaptations? (*Science Framework Addendum*, pp. 18, 22, and 24)			X		
5. Asexual and sexual reproduction in plants? (*Standards*, Number 13, p. S-10)		X			

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
L. Plants—Continued					
6. STIS issues; e.g., the useful applications of plants and plant products? (*Science Framework Addendum*, p. 25; *Standards*, Number 10, p. S-8, Number 16, p. S-11, and Number 17, p. S-12)			X		
— Factual inaccuracies, if any, in the preceding section					
M. Animals					
To what extent does the textbook include discussions about:					
1. Invertebrates					
a. Descriptions of the major phyla; e.g., porifera, coelenterates, worms, mollusks, echinoderms, and arthropods? (*Science Framework Addendum*, pp. 29–30)		X			

b. Structure and function of organs and systems? (*Science Framework Addendum*, pp. 28–29)	X				
c. Growth and development? (*Science Framework Addendum*, pp. 30–31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10)			X		
d. Reproduction, including sexual and asexual? (*Science Framework Addendum*, p. 30; *Standards*, Number 13, p. S-10)		X			
e. Behavior; e.g., social and reproductive? (*Standards*, Number 5, p. S-6)	X				
f. STIS issues; e.g., agriculture, food, pests, and aquaculture? (*Standards*, Number 17, p. S-12)			X		
2. Vertebrates (Nonhuman) a. Description of major classes of chordates; e.g., fish, amphibians, reptiles, birds, and mammals? (*Science Framework Addendum*, p. 29)		X			
b. Structure and functions of organs and systems? (*Science Framework Addendum*, pp. 28, 30; *Standards*, Number 7, p. S-7, and Number 9, p. S-8)	X				
c. Growth, development, and embryology? (*Science Framework Addendum*, p. 31)			X		
d. Sexual reproduction? (*Standards*, Number 13, p. S-10)			X		
e. Behavior; e.g., social and reproductive? (*Standards*, Number 5, p. S-10)		X			
f. STIS issues; e.g., wildlife management? (*Science Framework Addendum*, p. 13; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)			X		

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
M. Animals—Continued					
3. Vertebrates (Human)					
a. Structure, function, and maintenance of major body systems:					
(1) Nervous system and sense organs?		X			
(2) Circulatory system?		X			
(3) Digestive system?		X			
(4) Respiratory system?		X			
(5) Reproductive system?			X		
(6) Musculoskeletal system?		X			

(7) Excretory system?			X		
(8) Integumentary system?			X		
(9) Endocrine system? (*Science Framework Addendum*, p. 33; *Standards*, Number 7, p. S-7)			X		
b. Growth, development, and embryology? (*Science Framework Addendum*, p. 34; *Standards*, Number 7 and Number 8, p. S-7)		X			
c. Behavior; e.g., innate compared with learned? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 5 and Number 6, p. S-6)			X		
d. Transmission, symptoms, and prevention of STDs? (*Standards*, Number 17, p. S-12)			X		
e. STIS issues; e.g., genetic counseling, noncommunicable diseases, environmental issues, and substance abuse? (*Science Framework Addendum*, pp. 12–13, 31, 37; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)		X			
—— Factual inaccuracies, if any, in the preceding section					

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II. Life Science: Process Skills (Student's Edition)

Descriptions of Processes*

Observing

- Seeing
- Hearing
- Feeling
- Tasting
- Smelling

The main route to knowledge is through observing, using all the senses. This process is a distinct one by which people come to know about the characteristics of objects and their interactions.

Communicating

- Silent
- Oral
- Written
- Pictorial

Objects are named and events are described by people so that they can tell others about them. Communicating is a fundamental human process that enables one to learn more about a greater range of information than could be learned without this process.

Comparing

- Sensory comparisons
- Relative positive comparisons
- Linear comparisons
- Weight comparisons
- Capacity comparisons
- Quantity comparisons

Comparing is a distinct process by which people systematically examine objects and events in terms of similarities and differences. By comparing the known to something unknown, one gains knowledge about the unknown. All measurements are forms of comparing.

Organizing

- Data gathering
- Sequencing
- Grouping
- Classifying

Knowledge of principles and laws is gained only through the systematic compiling, classifying, and ordering of observed and compared data. Bodies of knowledge grow from long-term organizing processes.

Relating

- Using space-time relationships
- Formulating experimental hypotheses
- Controlling and manipulating variables
- Experimenting

Relating is a process by which concrete and abstract ideas are woven together to test or explain phenomena. Hypothetical-deductive reasoning, coordinate graphing, the managing of variables, and the comparison of effects of one variable on another contribute to the attainment of the major concepts of science.

INFERRING

- Synthesizing, analyzing
- Generalizing
- Recognizing and predicting patterns; stating laws
- Formulating explanatory models and theorizing

The process of realizing ideas that are *not* directly observable is the process of inferring. The process leads to predictive explanations for simple and complex phenomena.

APPLYING

- Using knowledge to solve problems
- Inventing (technology)

Use of knowledge is the applying of knowledge. Inventing, creating, problem solving, and determining probabilities are ways of using information that lead to gaining further information.

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[*] *Science Framework Addendum*, pp. 4–5.

DEFINITION OF TERMS

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REVIEW OF PROCESS SKILLS[1]

To what extent are the following process skills taught throughout the textbook:	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
1. Observing?	X				
2. Communicating?	X				
3. Comparing?	X				
4. Organizing?		X			
5. Relating?		X			
6. Inferring?			X		
7. Applying?				X	

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[1] *Science Framework Addendum*, p. 5.

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III. LIFE SCIENCE: TEACHER'S EDITION

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the textbook include: 1. Alternative strategies for organizing the course? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2 and Number 4)		X		
2. A range of suggested instructional activities? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 3)	X			
3. Material that engages students in using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
4. Varied activities to meet instructional needs of students with different learning styles and interests? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 1)	X			

5. Consideration of the instructional needs of limited-English-proficient students? (*Science Framework Addendum*, p. 103, "General Criteria")				X
6. Identification of process skills related to specific activities? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6 and Number 7)			X	
7. Instructional activities that integrate knowledge and skills learned in other disciplines; e.g., mathematics or history? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)	X			
8. Suggestions for structuring group instruction; e.g., cooperative learning? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2)				X
9. A listing of additional resources for extended and in-depth supplemental activities? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 3)	X			
10. A variety of assessment techniques; e.g., number and types of questions such as essay, definitions, and discussion? (*Science Framework Addendum*, p. 104, "Assessment and Evaluation," Number 1 and Number 2)		X		

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IV. LIFE SCIENCE: STUDENT'S LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. To what extent does the student's laboratory manual include:				
1. Experiences that reinforce the major concepts covered in the student's edition? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)	X			
2. Directions for laboratory setup, procedures, and data reporting related to the laboratory experiences? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8)	X			
3. Information that emphasizes safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9)	X			
4. Assignments that integrate knowledge and skills learned in other disciplines; e.g., reading and writing? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		

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5. Assignments that guide students toward using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)			X	
6. Information that promotes sensitivity to the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)				X
B. To what extent are the following process skills taught throughout the laboratory manual:*				
1. Observing?	X			
2. Communicating?	X			
3. Comparing?	X			
4. Organizing?		X		
5. Relating?		X		
6. Inferring?			X	
7. Applying?			X	

**Science Framework Addendum*, p. 5 and p. 104, "Content and Process," Number 7.

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V. LIFE SCIENCE: TEACHER'S EDITION OF THE LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the laboratory manual include:				
1. Information that encourages the shared responsibility for safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9; "Teachers' Materials," Number 9)	X			
2. Opportunities to demonstrate the interrelatedness of scientific information and process skills? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)			X	
3. Material which guides students to use higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)				X
4. Opportunities to integrate knowledge and skills from other disciplines; e.g., writing of laboratory reports? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		

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5. Instructional alternatives as appropriate and necessary? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 4)		X		
6. Resource lists for acquiring: a. Equipment?	X			
b. Chemicals?	X			
c. Supplies?	X			
d. Preserved and living specimens? (*Science Framework Addendum*, p. 104, "Teachers' Materials," Number 2)	X			
7. Necessary solutions and recipes? (*Science Framework Addendum*, pp. 104–105, "Teachers' Materials," Number 2)	X			
8. Information on the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)		X		
9. List of supplemental materials and resources? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 2f)			X	
10. Information about outdoor biology fieldwork? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 7)			X	

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I. LIFE SCIENCE: CONTENT (STUDENT'S EDITION)

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. Nature of Science To what extent does the textbook include discussions about: 1. The characteristics of living things; e.g., reproduction and growth? (*Science Framework Addendum*, p. 14)	X				
2. The "scientific method"; e.g., observation, hypothesis, and experimentation? (*Science Framework Addendum*, pp. 8, 12; *Standards*,* p. S-1)	X				
3. Science, Technology, Individuals, and Society (STIS) issues: life science in everyday life; e.g., health, ethical concerns, and careers? (*Science Framework Addendum*, p. 13)	X				
___ Factual inaccuracies, if any, in the preceding section?					

B. Ecology To what extent does the textbook include discussions about: 1. Biotic and abiotic interrelationships; e.g., chains, cycles (such as carbon, nitrogen, and water), and symbiotic relationships? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11)		X			
2. Levels of ecological organization; e.g., populations, communities, and biomes? (*Science Framework Addendum*, p. 39; *Standards*, Number 4, p. S-5, and Number 16, p. S-11)		X			
3. Structure of and energy flow through the ecosystem; e.g., producers, consumers, decomposers, and energy pyramids? (*Science Framework Addendum*, p. 40)			X		
4. STIS issues: conservation and the impact of society on the natural environment; e.g., pollution, endangered species, resource depletion, and recycling? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11)		X			
___ Factual inaccuracies, if any, in the preceding section					
C. Heredity To what extent does the textbook include discussions about: 1. Mendelian genetics? (*Science Framework Addendum*, p. 17; *Standards*, Number 14, p. S-10)			X		
2. The concept of passing of genetic traits from parent to offspring; e.g., family pedigree? (*Standards*, Number 14, p. S-10)		X			
3. Genetic diseases; e.g., hemophilia, Down's syndrome, cystic fibrosis, or sickle-cell anemia? (*Standards*, Number 12, p. S-9)				X	

NOTE: The secondary life science textbook review instrument is correlated with the following resource documents:
- The *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve* is cited as *Science Framework Addendum*.
- **Model Curriculum Standards: Grades Nine Through Twelve* is cited as *Standards*.

These documents are published by the California State Department of Education. (See pages 403 and 404 for ordering information).

[†] A factual inaccuracy was noted in this section. The publisher has given assurances that the inaccuracy will be corrected in the next edition of this book. For more information see "Factual Inaccuracies" on page xii.

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
C. Heredity—Continued					
4. STIS issues; e.g., the benefits and problems of genetic engineering? (*Science Framework Addendum*, pp. 19–20)			X		
— Factual inaccuracies, if any, in the preceding section					
D. Evolution					
To what extent does the textbook include discussions about:					
1. The factual basis for evolution; e.g., anatomical evidence and fossil records? (*Standards*, Number 15, p. S-11)			X		
2. Human evolution? (*Science Framework Addendum*, p. 35)			X		

3. The mechanisms of evolution; e.g., mutation, selection, speciation, adaptation, and extinction? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11)			X		
___ Factual inaccuracies, if any, in the preceding section					
E. Classification To what extent does the textbook include discussions about: 1. The historical development of systems of classification; e.g., Aristotle and Linnaeus? (*Standards*, p. S-1, Number 3, p. S-5)			X		
2. Identification and description of the five kingdom system of classifying living things? (*Science Framework Addendum*, p. 14)	X				
___ Factual inaccuracies, if any, in the preceding section					
F. Energy Processes To what extent does the textbook include discussions about: 1. The chemical basis of life; e.g., atoms, molecules, bonds, and reactions? (*Science Framework Addendum*, p. 24)			X		
2. Human nutrition as related to everyday diet; e.g., food, vitamins, water, and minerals? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 8, p. S-7)			X		
3. Cellular respiration? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4, and Number 4, p. S-5)			X		
4. Photosynthesis? (*Science Framework Addendum*, p. 24; *Standards*, Number 11, p. S-9)				X	
5. The conversion of matter and energy as it applies to living systems; e.g., conservation of energy and matter? (*Science Framework Addendum*, p. 24; *Standards*, Number 1, p. S-4)			X		
___ Factual inaccuracies, if any, in the preceding section					

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
G. **Cells, Tissues, Organs, and Organ Systems** To what extent does the textbook include discussions about:					
1. A historical perspective; e.g., Hook, Schleiden, Schwann, and Virchow? (*Standards*, Number 12, Activity Number 3, p. S-9)			X		
2. The structures and functions of cells and cell components, including the similarities and differences between plant and animal cells? (*Standards*, Number 1, p. S-4, and Number 12, p. S-9)			X		
3. The cell cycle, including mitosis and meiosis? (*Standards*, Number 12, p. S-9)			X		
4. The structure and function of DNA and RNA in cell replication and in the reproduction of organisms? (*Standards*, Number 12, p. S-9)			X		

5. The interrelationships among cells, tissues, organs, and organ systems within multicellular organisms? (*Standards*, Number 2, p. S-4)	X				
___ Factual inaccuracies, if any, in the preceding section					
II. Viruses To what extent does the textbook include discussions about: 1. Characteristics of viruses? (*Science Framework Addendum*, p. 27; *Standards*, Number 3, p. S-5)			X		
2. Reproduction of viruses? (*Science Framework Addendum*, p. 27)				X	
3. Human diseases which involve viral pathogens? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					
I. Monera To what extent does the textbook include discussions about: 1. The major groups of monera? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5)			X		
2. The types of diseases produced by certain monera? (*Science Framework Addendum*, p. 27)			X		
3. Reproduction in monera? (*Science Framework Addendum*, p. 26)				X	
4. STIS issues; e.g., food production, waste disposal, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)				X	
___ Factual inaccuracies, if any, in the preceding section					

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
J. Protists To what extent does the textbook include discussions about: 1. The major groups of protists? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5)			X		
2. Diseases caused by protists? (*Science Framework Addendum*, p. 27)			X		
3. Reproduction in protists? (*Science Framework Addendum*, p. 26)				X	
4. STIS issues; e.g., food production, waste disposal, industrial products, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)			X		

___ Factual inaccuracies, if any, in the preceding section					
K. Fungi To what extent does the textbook include discussions about: 1. The major groups of fungi? (*Science Framework Addendum*, pp. 14–15, 27; *Standards*, Number 3, p. S-5)			X		
2. Diseases caused by fungi; e.g., athlete's foot, ringworm, yeast infection, smuts, and rusts? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5)			X		
3. Asexual and sexual reproduction in fungi? (*Science Framework Addendum*, p. 26)			X		
4. STIS issues; e.g., food (toxic mushrooms), beverages, or antibiotics? (*Science Framework Addendum*, p. 26; *Standards*, Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					
L. Plants To what extent does the textbook include discussions about: 1. Classification of plants into groups? (*Standards*, Number 4, p. S-5)	X				
2. The structures and the functions of the parts of plants? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8, and Number 11, p. S-9)		X			
3. Response to stimuli? (*Science Framework Addendum*, p. 24)			X		
4. Plant adaptations? (*Science Framework Addendum*, pp. 18, 22, and 24)			X		
5. Asexual and sexual reproduction in plants? (*Standards*, Number 13, p. S-10)		X			

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
L. Plants—Continued					
6. STIS issues; e.g., the useful applications of plants and plant products? (*Science Framework Addendum*, p. 25; *Standards*, Number 10, p. S-8, Number 16, p. S-11, and Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					
M. Animals					
To what extent does the textbook include discussions about:					
1. Invertebrates					
a. Descriptions of the major phyla; e.g., porifera, coelenterates, worms, mollusks, echinoderms, and arthropods? (*Science Framework Addendum*, pp. 29–30)	X				

b. Structure and function of organs and systems? (*Science Framework Addendum*, pp. 28–29)		X			
c. Growth and development? (*Science Framework Addendum*, pp. 30–31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10)			X		
d. Reproduction, including sexual and asexual? (*Science Framework Addendum*, p. 30; *Standards*, Number 13, p. S-10)			X		
e. Behavior; e.g., social and reproductive? (*Standards*, Number 5, p. S-6)			X		
f. STIS issues; e.g., agriculture, food, pests, and aquaculture? (*Standards*, Number 17, p. S-12)		X			
2. Vertebrates (Nonhuman) a. Description of major classes of chordates; e.g., fish, amphibians, reptiles, birds, and mammals? (*Science Framework Addendum*, p. 29)		X			
b. Structure and functions of organs and systems? (*Science Framework Addendum*, pp. 28, 30; *Standards*, Number 7, p. S-7, and Number 9, p. S-8)		X			
c. Growth, development, and embryology? (*Science Framework Addendum*, p. 31)			X		
d. Sexual reproduction? (*Standards*, Number 13, p. S-10)			X		
e. Behavior; e.g., social and reproductive? (*Standards*, Number 5, p. S-10)			X		
f. STIS issues; e.g., wildlife management? (*Science Framework Addendum*, p. 13; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)			X		

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
M. Animals—Continued 3. Vertebrates (Human) a. Structure, function, and maintenance of major body systems: (1) Nervous system and sense organs?		X			
(2) Circulatory system?		X			
(3) Digestive system?		X			
(4) Respiratory system?			X		
(5) Reproductive system?			X		
(6) Musculoskeletal system?			X		

(7) Excretory system?			X		
(8) Integumentary system?			X		
(9) Endocrine system? (*Science Framework Addendum*, p. 33; *Standards*, Number 7, p. S-7)			X		
b. Growth, development, and embryology? (*Science Framework Addendum*, p. 34; *Standards*, Number 7 and Number 8, p. S-7)			X		
c. Behavior; e.g., innate compared with learned? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 5 and Number 6, p. S-6)			X		
d. Transmission, symptoms, and prevention of STDs? (*Standards*, Number 17, p. S-12)			X		
e. STIS issues; e.g., genetic counseling, noncommunicable diseases, environmental issues, and substance abuse? (*Science Framework Addendum*, pp. 12–13, 31, 37; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)	X				
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II. LIFE SCIENCE: PROCESS SKILLS (STUDENT'S EDITION)

DESCRIPTIONS OF PROCESSES*

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- Using space-time relationships
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**Science Framework Addendum*, pp. 4–5.

DEFINITION OF TERMS

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REVIEW OF PROCESS SKILLS[1]

To what extent are the following process skills taught throughout the textbook:	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
1. Observing?	X				
2. Communicating?	X				
3. Comparing?		X			
4. Organizing?		X			
5. Relating?			X		
6. Inferring?			X		
7. Applying?			X		

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[1] *Science Framework Addendum*, p. 5.

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III. LIFE SCIENCE: TEACHER'S EDITION

DEFINITION OF TERMS

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the textbook include: 1. Alternative strategies for organizing the course? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2 and Number 4)	X			
2. A range of suggested instructional activities? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 3)	X			
3. Material that engages students in using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
4. Varied activities to meet instructional needs of students with different learning styles and interests? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 1)	X			

5. Consideration of the instructional needs of limited-English-proficient students? (*Science Framework Addendum*, p. 103, "General Criteria")			X	
6. Identification of process skills related to specific activities? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6 and Number 7)	X			
7. Instructional activities that integrate knowledge and skills learned in other disciplines; e.g., mathematics or history? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		
8. Suggestions for structuring group instruction; e.g., cooperative learning? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2)			X	
9. A listing of additional resources for extended and in-depth supplemental activities? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 3)	X			
10. A variety of assessment techniques; e.g., number and types of questions such as essay, definitions, and discussion? (*Science Framework Addendum*, p. 104, "Assessment and Evaluation," Number 1 and Number 2)	X			

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IV. LIFE SCIENCE: STUDENT'S LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. To what extent does the student's laboratory manual include:				
1. Experiences that reinforce the major concepts covered in the student's edition? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)	X			
2. Directions for laboratory setup, procedures, and data reporting related to the laboratory experiences? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8)	X			
3. Information that emphasizes safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9)	X			
4. Assignments that integrate knowledge and skills learned in other disciplines; e.g., reading and writing? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		

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5. Assignments that guide students toward using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)		X		
6. Information that promotes sensitivity to the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)			X	
B. To what extent are the following process skills taught throughout the laboratory manual:* 1. Observing?	X			
2. Communicating?	X			
3. Comparing?	X			
4. Organizing?		X		
5. Relating?		X		
6. Inferring?			X	
7. Applying?			X	

**Science Framework Addendum*, p. 5 and p. 104, "Content and Process," Number 7.

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V. LIFE SCIENCE: TEACHER'S EDITION OF THE LABORATORY MANUAL

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the laboratory manual include:				
1. Information that encourages the shared responsibility for safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9; "Teachers' Materials," Number 9)	X			
2. Opportunities to demonstrate the interrelatedness of scientific information and process skills? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)	X			
3. Material which guides students to use higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)			X	
4. Opportunities to integrate knowledge and skills from other disciplines; e.g., writing of laboratory reports? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)		X		

5. Instructional alternatives as appropriate and necessary? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 4)	X			
6. Resource lists for acquiring: a. Equipment?	X			
b. Chemicals?	X			
c. Supplies?	X			
d. Preserved and living specimens? (*Science Framework Addendum*, p. 104, "Teachers' Materials," Number 2)	X			
7. Necessary solutions and recipes? (*Science Framework Addendum*, pp. 104–105, "Teachers' Materials," Number 2)	X			
8. Information on the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)			X	
9. List of supplemental materials and resources? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 2f)		X		
10. Information about outdoor biology fieldwork? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 7)			X	

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I. LIFE SCIENCE: CONTENT (STUDENT'S EDITION)

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. Nature of Science To what extent does the textbook include discussions about: 1. The characteristics of living things; e.g., reproduction and growth? (*Science Framework Addendum*, p. 14)		X			
2. The "scientific method"; e.g., observation, hypothesis, and experimentation? (*Science Framework Addendum*, pp. 8, 12; *Standards*,* p. S-1)			X		
3. Science, Technology, Individuals, and Society (STIS) issues: life science in everyday life; e.g., health, ethical concerns, and careers? (*Science Framework Addendum*, p. 13)	X				
___ Factual inaccuracies, if any, in the preceding section†					

B. Ecology To what extent does the textbook include discussions about: 1. Biotic and abiotic interrelationships; e.g., chains, cycles (such as carbon, nitrogen, and water), and symbiotic relationships? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11)		X			
2. Levels of ecological organization; e.g., populations, communities, and biomes? (*Science Framework Addendum*, p. 39; *Standards*, Number 4, p. S-5, and Number 16, p. S-11)	X				
3. Structure of and energy flow through the ecosystem; e.g., producers, consumers, decomposers, and energy pyramids? (*Science Framework Addendum*, p. 40)			X		
4. STIS issues: conservation and the impact of society on the natural environment; e.g., pollution, endangered species, resource depletion, and recycling? (*Science Framework Addendum*, p. 42; *Standards*, Number 16, p. S-11)		X			
___ Factual inaccuracies, if any, in the preceding section					
C. Heredity To what extent does the textbook include discussions about: 1. Mendelian genetics? (*Science Framework Addendum*, p. 17; *Standards*, Number 14, p. S-10)			X		
2. The concept of passing of genetic traits from parent to offspring; e.g., family pedigree? (*Standards*, Number 14, p. S-10)		X			
3. Genetic diseases; e.g., hemophilia, Down's syndrome, cystic fibrosis, or sickle-cell anemia? (*Standards*, Number 12, p. S-9)				X	

NOTE: The secondary life science textbook review instrument is correlated with the following resource documents:

- The *Science Framework Addendum for California Public Schools: Kindergarten and Grades One Through Twelve* is cited as *Science Framework Addendum*.
- **Model Curriculum Standards: Grades Nine Through Twelve* is cited as *Standards*.

These documents are published by the California State Department of Education. (See pages 403 and 404 for ordering information).

†A factual inaccuracy was noted in this section. The publisher has given assurances that the inaccuracy will be corrected in the next edition of this book. For more information see "Factual Inaccuracies" on page xii.

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
C. Heredity—Continued					
4. STIS issues; e.g., the benefits and problems of genetic engineering? (*Science Framework Addendum*, pp. 19–20)					X
— Factual inaccuracies, if any, in the preceding section					
D. Evolution To what extent does the textbook include discussions about:					
1. The factual basis for evolution; e.g., anatomical evidence and fossil records? (*Standards*, Number 15, p. S-11)		X			
2. Human evolution? (*Science Framework Addendum*, p. 35)				X	

3. The mechanisms of evolution; e.g., mutation, selection, speciation, adaptation, and extinction? (*Science Framework Addendum*, p. 18; *Standards*, Number 15, p. S-11)		X			
— Factual inaccuracies, if any, in the preceding section					
E. Classification To what extent does the textbook include discussions about: 1. The historical development of systems of classification; e.g., Aristotle and Linnaeus? (*Standards*, p. S-1, Number 3, p. S-5)				X	
2. Identification and description of the five kingdom system of classifying living things? (*Science Framework Addendum*, p. 14)				X	
— Factual inaccuracies, if any, in the preceding section					
F. Energy Processes To what extent does the textbook include discussions about: 1. The chemical basis of life; e.g., atoms, molecules, bonds, and reactions? (*Science Framework Addendum*, p. 24)				X	
2. Human nutrition as related to everyday diet; e.g., food, vitamins, water, and minerals? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 8, p. S-7)			X		
3. Cellular respiration? (*Science Framework Addendum*, p. 19; *Standards*, Number 1, p. S-4, and Number 4, p. S-5)			X		
4. Photosynthesis? (*Science Framework Addendum*, p. 24; *Standards*, Number 11, p. S-9)		X			
5. The conversion of matter and energy as it applies to living systems; e.g., conservation of energy and matter? (*Science Framework Addendum*, p. 24; *Standards*, Number 1, p. S-4)			X		
— Factual inaccuracies, if any, in the preceding section					

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
G. Cells, Tissues, Organs, and Organ Systems To what extent does the textbook include discussions about:					
1. A historical perspective; e.g., Hook, Schleiden, Schwann, and Virchow? (*Standards*, Number 12, Activity Number 3, p. S-9)				X	
2. The structures and functions of cells and cell components, including the similarities and differences between plant and animal cells? (*Standards*, Number 1, p. S-4, and Number 12, p. S-9)		X			
3. The cell cycle, including mitosis and meiosis? (*Standards*, Number 12, p. S-9)			X		
4. The structure and function of DNA and RNA in cell replication and in the reproduction of organisms? (*Standards*, Number 12, p. S-9)			X		

5. The interrelationships among cells, tissues, organs, and organ systems within multicellular organisms? (*Standards*, Number 2, p. S-4)			X		
___ Factual inaccuracies, if any, in the preceding section					
H. Viruses To what extent does the textbook include discussions about: 1. Characteristics of viruses? (*Science Framework Addendum*, p. 27; *Standards*, Number 3, p. S-5)			X		
2. Reproduction of viruses? (*Science Framework Addendum*, p. 27)				X	
3. Human diseases which involve viral pathogens? (*Science Framework Addendum*, p. 27; *Standards*, Number 17, p. S-12)				X	
___ Factual inaccuracies, if any, in the preceding section					
I. Monera To what extent does the textbook include discussions about: 1. The major groups of monera? (*Science Framework Addendum*, pp. 14–15; *Standards*, Number 3, p. S-5)			X		
2. The types of diseases produced by certain monera? (*Science Framework Addendum*, p. 27)				X	
3. Reproduction in monera? (*Science Framework Addendum*, p. 26)				X	
4. STIS issues; e.g., food production, waste disposal, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
J. Protists To what extent does the textbook include discussions about: 1. The major groups of protists? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5)			X		
2. Diseases caused by protists? (*Science Framework Addendum*, p. 27)				X	
3. Reproduction in protists? (*Science Framework Addendum*, p. 26)				X	
4. STIS issues; e.g., food production, waste disposal, industrial products, and pollution? (*Science Framework Addendum*, p. 27; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)			X		

___ Factual inaccuracies, if any, in the preceding section					
K. Fungi To what extent does the textbook include discussions about: 1. The major groups of fungi? (*Science Framework Addendum*, pp. 14–15, 27; *Standards*, Number 3, p. S-5)			X		
2. Diseases caused by fungi; e.g., athlete's foot, ringworm, yeast infection, smuts, and rusts? (*Science Framework Addendum*, p. 27; *Standards*, Number 4, p. S-5)				X	
3. Asexual and sexual reproduction in fungi? (*Science Framework Addendum*, p. 26)				X	
4. STIS issues; e.g., food (toxic mushrooms), beverages, or antibiotics? (*Science Framework Addendum*, p. 26; *Standards*, Number 17, p. S-12)			X		
___ Factual inaccuracies, if any, in the preceding section					
L. Plants To what extent does the textbook include discussions about: 1. Classification of plants into groups? (*Standards*, Number 4, p. S-5)			X		
2. The structures and the functions of the parts of plants? (*Science Framework Addendum*, p. 24; *Standards*, Number 10, p. S-8, and Number 11, p. S-9)			X		
3. Response to stimuli? (*Science Framework Addendum*, p. 24)			X		
4. Plant adaptations? (*Science Framework Addendum*, pp. 18, 22, and 24)			X		
5. Asexual and sexual reproduction in plants? (*Standards*, Number 13, p. S-10)		X			

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
L. Plants—Continued					
6. STIS issues; e.g., the useful applications of plants and plant products? (*Science Framework Addendum*, p. 25; *Standards*, Number 10, p. S-8, Number 16, p. S-11, and Number 17, p. S-12)		X			
— Factual inaccuracies, if any, in the preceding section					
M. Animals					
To what extent does the textbook include discussions about:					
1. Invertebrates					
a. Descriptions of the major phyla; e.g., porifera, coelenterates, worms, mollusks, echinoderms, and arthropods? (*Science Framework Addendum*, pp. 29–30)		X			

b. Structure and function of organs and systems? (*Science Framework Addendum*, pp. 28–29)		X			
c. Growth and development? (*Science Framework Addendum*, pp. 30–31; *Standards*, Number 9, p. S-8, and Number 13, p. S-10)		X			
d. Reproduction, including sexual and asexual? (*Science Framework Addendum*, p. 30; *Standards*, Number 13, p. S-10)		X			
e. Behavior; e.g., social and reproductive? (*Standards*, Number 5, p. S-6)			X		
f. STIS issues; e.g., agriculture, food, pests, and aquaculture? (*Standards*, Number 17, p. S-12)	X				
2. Vertebrates (Nonhuman) a. Description of major classes of chordates; e.g., fish, amphibians, reptiles, birds, and mammals? (*Science Framework Addendum*, p. 29)		X			
b. Structure and functions of organs and systems? (*Science Framework Addendum*, pp. 28, 30; *Standards*, Number 7, p. S-7, and Number 9, p. S-8)		X			
c. Growth, development, and embryology? (*Science Framework Addendum*, p. 31)		X			
d. Sexual reproduction? (*Standards*, Number 13, p. S-10)			X		
e. Behavior; e.g., social and reproductive? (*Standards*, Number 5, p. S-10)		X			
f. STIS issues; e.g., wildlife management? (*Science Framework Addendum*, p. 13; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)		X			

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Content	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
M. Animals—Continued					
3. Vertebrates (Human)					
a. Structure, function, and maintenance of major body systems:					
(1) Nervous system and sense organs?		X			
(2) Circulatory system?		X			
(3) Digestive system?		X			
(4) Respiratory system?		X			
(5) Reproductive system?		X			
(6) Musculoskeletal system?		X			

(7) Excretory system?		X			
(8) Integumentary system?			X		
(9) Endocrine system? (*Science Framework Addendum*, p. 33; *Standards*, Number 7, p. S-7)		X			
b. Growth, development, and embryology? (*Science Framework Addendum*, p. 34; *Standards*, Number 7 and Number 8, p. S-7)		X			
c. Behavior; e.g., innate compared with learned? (*Science Framework Addendum*, pp. 34–35; *Standards*, Number 5 and Number 6, p. S-6)		X			
d. Transmission, symptoms, and prevention of STDs? (*Standards*, Number 17, p. S-12)					X
e. STIS issues; e.g., genetic counseling, noncommunicable diseases, environmental issues, and substance abuse? (*Science Framework Addendum*, pp. 12–13, 31, 37; *Standards*, Number 16, p. S-11, and Number 17, p. S-12)	X				
____ Factual inaccuracies, if any, in the preceding section					

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II. LIFE SCIENCE: PROCESS SKILLS (STUDENT'S EDITION)

DESCRIPTIONS OF PROCESSES*

OBSERVING

- Seeing
- Hearing
- Feeling
- Tasting
- Smelling

The main route to knowledge is through observing, using all the senses. This process is a distinct one by which people come to know about the characteristics of objects and their interactions.

COMMUNICATING

- Silent
- Oral
- Written
- Pictorial

Objects are named and events are described by people so that they can tell others about them. Communicating is a fundamental human process that enables one to learn more about a greater range of information than could be learned without this process.

COMPARING

- Sensory comparisons
- Relative positive comparisons
- Linear comparisons
- Weight comparisons
- Capacity comparisons
- Quantity comparisons

Comparing is a distinct process by which people systematically examine objects and events in terms of similarities and differences. By comparing the known to something unknown, one gains knowledge about the unknown. All measurements are forms of comparing.

ORGANIZING

- Data gathering
- Sequencing
- Grouping
- Classifying

Knowledge of principles and laws is gained only through the systematic compiling, classifying, and ordering of observed and compared data. Bodies of knowledge grow from long-term organizing processes.

RELATING

- Using space-time relationships
- Formulating experimental hypotheses
- Controlling and manipulating variables
- Experimenting

Relating is a process by which concrete and abstract ideas are woven together to test or explain phenomena. Hypothetical-deductive reasoning, coordinate graphing, the managing of variables, and the comparison of effects of one variable on another contribute to the attainment of the major concepts of science.

INFERRING

- Synthesizing, analyzing
- Generalizing
- Recognizing and predicting patterns; stating laws
- Formulating explanatory models and theorizing

The process of realizing ideas that are *not* directly observable is the process of inferring. The process leads to predictive explanations for simple and complex phenomena.

APPLYING

- Using knowledge to solve problems
- Inventing (technology)

Use of knowledge is the applying of knowledge. Inventing, creating, problem solving, and determining probabilities are ways of using information that lead to gaining further information.

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[*] *Science Framework Addendum*, pp. 4–5.

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REVIEW OF PROCESS SKILLS[†]

To what extent are the following process skills taught throughout the textbook:	*High emphasis*	*Substantial emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
1. Observing?	X				
2. Communicating?	X				
3. Comparing?	X				
4. Organizing?		X			
5. Relating?				X	
6. Inferring?				X	
7. Applying?				X	

[†] *Science Framework Addendum*, p. 5.

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Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the textbook include:				
1. Alternative strategies for organizing the course? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2 and Number 4)			X	
2. A range of suggested instructional activities? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 3)		X		
3. Material that engages students in using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)			X	
4. Varied activities to meet instructional needs of students with different learning styles and interests? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 1)		X		

5. Consideration of the instructional needs of limited-English-proficient students? (*Science Framework Addendum*, p. 103, "General Criteria")			X	
6. Identification of process skills related to specific activities? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6 and Number 7)				X
7. Instructional activities that integrate knowledge and skills learned in other disciplines; e.g., mathematics or history? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)			X	
8. Suggestions for structuring group instruction; e.g., cooperative learning? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 2)		X		
9. A listing of additional resources for extended and in-depth supplemental activities? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 3)		X		
10. A variety of assessment techniques; e.g., number and types of questions such as essay, definitions, and discussion? (*Science Framework Addendum*, p. 104, "Assessment and Evaluation," Number 1 and Number 2)			X	

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Scott, Foresman and Company	***Scott, Foresman Life Science***	**1987**

IV. LIFE SCIENCE: STUDENT'S LABORATORY MANUAL

DEFINITION OF TERMS

DEGREE OF EMPHASIS

HIGH EMPHASIS means that the feature is covered and is illustrated by *many* examples.

MODERATE EMPHASIS means that the feature is covered and is illustrated by *few* examples.

LIMITED EMPHASIS means that the feature is covered and/or illustrated by a *single* example.

NOT COVERED means that the feature is *not* covered.

Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
A. To what extent does the student's laboratory manual include:				
1. Experiences that reinforce the major concepts covered in the student's edition? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)		X		
2. Directions for laboratory setup, procedures, and data reporting related to the laboratory experiences? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8)	X			
3. Information that emphasizes safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9)			X	
4. Assignments that integrate knowledge and skills learned in other disciplines; e.g., reading and writing? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)			X	

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5. Assignments that guide students toward using higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)			X	
6. Information that promotes sensitivity to the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)				X
B. To what extent are the following process skills taught throughout the laboratory manual:*				
1. Observing?	X			
2. Communicating?	X			
3. Comparing?	X			
4. Organizing?		X		
5. Relating?			X	
6. Inferring?			X	
7. Applying?				X

**Science Framework Addendum*, p. 5 and p. 104, "Content and Process," Number 7.

PUBLISHER	TITLE	COPYRIGHT
Scott, Foresman and Company	***Scott, Foresman Life Science***	**1987**

V. LIFE SCIENCE: TEACHER'S EDITION OF THE LABORATORY MANUAL

DEFINITION OF TERMS

DEGREE OF EMPHASIS

HIGH EMPHASIS means that the feature is covered and is illustrated by *many* examples.
MODERATE EMPHASIS means that the feature is covered and is illustrated by *few* examples.
LIMITED EMPHASIS means that the feature is covered and/or illustrated by a *single* example.
NOT COVERED means that the feature is *not* covered.

Content	*High emphasis*	*Moderate emphasis*	*Limited emphasis*	*Not covered*
To what extent does the teacher's edition of the laboratory manual include: 1. Information that encourages the shared responsibility for safety in the science laboratory? (*Science Framework Addendum*, p. 104, "Content and Process," Number 9; "Teachers' Materials," Number 9)				X
2. Opportunities to demonstrate the interrelatedness of scientific information and process skills? (*Science Framework Addendum*, p. 104, "Content and Process," Number 6)				X
3. Material which guides students to use higher-order thinking skills? (*Science Framework Addendum*, p. 104, "Organization of Materials," Number 4)				X
4. Opportunities to integrate knowledge and skills from other disciplines; e.g., writing of laboratory reports? (*Science Framework Addendum*, p. 104, "Content and Process," Number 5)				X

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5. Instructional alternatives as appropriate and necessary? (*Science Framework Addendum*, p. 104, "Instructional Strategies," Number 4)				X
6. Resource lists for acquiring: a. Equipment?	X			
b. Chemicals?	X			
c. Supplies?	X			
d. Preserved and living specimens? (*Science Framework Addendum*, p. 104, "Teachers' Materials," Number 2)		X		
7. Necessary solutions and recipes? (*Science Framework Addendum*, pp. 104–105, "Teachers' Materials," Number 2)			X	
8. Information on the humane treatment of animals? (*Science Framework Addendum*, p. 104, "Content and Process," Number 8 and Number 10)			X	
9. List of supplemental materials and resources? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 2f)				X
10. Information about outdoor biology fieldwork? (*Science Framework Addendum*, p. 105, "Teachers' Materials," Number 7)				X

APPENDIX

This Appendix contains information about the organization of the textbooks reviewed elsewhere in this publication. Please note that the descriptions were developed from unedited information provided by publishers. These descriptions were intended to be narratives of each textbook's table of contents. As such, reviewers are encouraged to examine carefully those textbooks which may be appropriate to their curricular needs.

Descriptions of Biology Textbooks

Addison-Wesley Publishing Company
Biology: A Systems Approach, 1988 386
Harcourt Brace Jovanovich, Inc.
Biology, 1986 387
D.C. Heath and Company
Heath Biology, 1989 388
Holt, Rinehart and Winston, Inc.
Modern Biology, 1989 389
Kendall/Hunt Publishing Company
Biological Science: An Ecological Approach, 1987 390
Merrill Publishing Company
Biology: Living Systems, 1986 391
Prentice Hall School Division (Formerly CEBCO—Allyn and Bacon)
Biology: The Study of Life, 1987 392
Prentice Hall School Division
Prentice-Hall Biology, 1987 393
Prentice Hall School Division
Silver Burdett Biology, 1986 394
Scott, Foresman and Company
Scott, Foresman Biology, 1988 395

Descriptions of Life Science Textbooks

Globe Book Company
Pathways in Biology, 1979 396
D.C. Heath and Company
Heath Life Science, 1987 397
Holt, Rinehart and Winston, Inc.
Holt Life Science, 1986 398
Kendall/Hunt Publishing Company
Biological Science: Patterns and Processes, 1986 399
Merrill Publishing Company
Biology: An Everyday Experience, 1988 400
Merrill Publishing Company
Focus on Life Science, 1987 401
Scott, Foresman and Company
Scott, Foresman Life Science, 1987 402

PUBLISHER	TITLE	COPYRIGHT
Addison-Wesley Publishing Company	***Biology: A Systems Approach***	**1988**

Biology: A Systems Approach is a 26-chapter high school biology textbook, appropriate for tenth grade average and honors students; but it is not intended for advanced placement students.

The textbook emphasizes similarities among living things through the study of biological systems. The similarities are explained by comparing the main functional systems of four representative organisms: hydra, earthworm, grasshopper, and human. The digestive, circulatory, skeletal, and reproductive systems are compared. Human systems are described throughout the textbook.

The following major topics are presented: an introduction to biology, cell structure and function, respiration, photosynthesis, genetics, evolution, reproduction, regulation, senses, environment, classification, behavior, health, and disease.

The *Teacher's Edition* begins with an overview for each chapter as well as teaching suggestions, extension materials, and answers to questions. The overprinted student's pages contain information on resource materials, science background, and answers to section review questions.

The *Biology: A Systems Approach Laboratory Manual* contains 67 laboratory activities which follow the topics in the book. From one to five activities listed are related to each of the chapters in the textbook.

The teacher's edition of the *Laboratory Manual* has an introductory section which provides information on the types of laboratories, laboratory safety, materials needed, and preparation steps for solutions and culture media. The overprinted student's pages contain answers, teacher's instructions, safety hints, and background information.

Related available materials are:

Teacher's Resource Book
Tests

PUBLISHER	TITLE	COPYRIGHT
Harcourt Brace Jovanovich, Inc.	***Biology***	**1986**

Biology, a phylogenetic approach to the study of biology, is designed for average high school students. One or more chapters in the 11 units contain discussions about characteristics of life, the cell, genetics and continuity of life, evolution, viruses and monera, protists and fungi, plants, invertebrates, vertebrates, human biology, and ecology.

Each of the 53 chapters contains these instructional features: "Outline," "Introduction," "Section Objectives," "Reviewing the Section," "Q/A" (questions and answers), "Feature Articles," "Highlight on Careers" or "Spotlight on Biologists," "Investigation," and "Chapter Review." A "BioTech" in each unit provides information about current medical, technological, and environmental issues. A reference section includes classification of organisms into five kingdoms; a section on laboratory procedures, safety guidelines, and key discoveries in biology; a glossary; and an index.

The *Teacher's Edition* includes answers to all textbook questions in addition to teaching aids, background, general information, and a chapter-by-chapter guide.

The laboratory manual, *Laboratory Investigations: Biology*, contains 88 additional investigations that apply chapter content, develop process skills, and follow a scientific method. The *Teacher's Edition* contains answers to all questions, hints on performing the investigation, directions for preparing materials, and a complete materials list.

Other available materials are:

Computer Test Bank
The HBJ BioFile,® A Teacher's Resource Binder
Overhead Transparencies
Student Record Book
Study Guide
Tests

A 1989 edition of *Biology* is now available that reflects the pedagogy and ancillaries of the 1986 edition as well as containing an updated content, a new chapter on "Human Diseases," an expanded reference section, an interleaved *Annotated Teacher's Edition*, and some new ancillaries.

PUBLISHER	TITLE	COPYRIGHT
D. C. Heath and Company	***Heath Biology***	**1989**

Heath Biology, newly revised, is organized phylogenetically and is intended for use by average tenth grade students.

The textbook is organized as follows:

- Unit One lays the foundation in scientific processes, provides an introduction to basic chemistry and biochemistry, and covers cell structures.
- Unit Two covers the treatment of genetics and evolution and concludes with material on classification using a five-kingdom classification system.
- Units Three through Six present studies of representative organisms from the five kingdoms.
- Unit Seven focuses on human anatomy and physiology.
- Unit Eight synthesizes information covered in previous units while focusing on the study of how organisms at all levels of the food chain interact with their environment.

Special features in each chapter's review include techniques for concept mapping and case studies focusing on issues in bioethics.

The *Teacher's Annotated Edition* includes provisions for adapting material to the needs of students with varying academic abilities as shown in correlations provided for each chapter.

Heath Biology Laboratory Investigations includes 62 laboratory experiments. The program follows the chapter sequence in *Heath Biology* by reinforcing the concepts, demonstrating scientific principles, or reconfirming hypotheses found in the textbook.

The *Teacher's Annotated Edition, Heath Biology Laboratory Investigations* includes a laboratory safety section which provides instructions for disposal of reagents used in the manual. A prelaboratory section covers laboratory techniques and skills students need prior to doing an experiment.

Other available components are:

Heath Biology Computer Test Bank
Heath Biology Instruction Organizer
Heath Biology Overhead Transparencies, with work sheets
Heath Biology Study Guide
Heath Biosolve Software

PUBLISHER	TITLE	COPYRIGHT
Holt, Rinehart and Winston, Inc.	***Modern Biology***	**1989**

Modern Biology, newly revised, is intended for average tenth grade students. The content is presented through the major themes of evolution, reproduction, development, relationship with structure and function, ecology, energy transfer, and science and society.

Each chapter is divided into sections. Each section begins with objectives and ends with five questions, one of which is a critical-thinking question. Each chapter contains an in-text laboratory and two pages that list testing materials. Special features include articles by scientists, descriptions of how process skills are used in scientific inquiry, special critical-thinking features, and sections on biotechnology and science and society.

The *Teacher's Edition* is organized so that teacher's material precedes each chapter. Planning and pacing guides, alternative strategies, safety information, activities for motivation and critical thinking, and procedures for laboratory preparation are included.

Modern Biology Laboratories is available in consumable and nonconsumable formats. In each of the 64 laboratory activities, strategies for using process skills are included. All biology laboratory activities are humane. An optional frog dissection is included. Computerized laboratory exercises are also available.

The *Teacher's Edition, Modern Biology Laboratories* contains safety guidelines, necessary information for laboratory setups, and answers to questions. Time for the completion of laboratories is also included.

Other components included are:

Blackline Masters
Colored Overhead Transparencies
Computerized Laboratories
Computerized Testbank
Posters
Process and Vocabulary Skills
Section Reviews
Teacher's Resource Organizer
Tests and Alternate Tests

795

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PUBLISHER	TITLE	COPYRIGHT
Kendall/Hunt Publishing Company	***Biological Science: An Ecological Approach***	**1987**

Biological Science: An Ecological Approach has been revised. This book is designed for the middle 60 percent (in interest and ability) of tenth grade students.

The content of the *BSCS Green Version* focuses on these major themes:* "The World of Life: The Biosphere," "Continuity in the Biosphere," "Diversity and Adaptation in the Biosphere," "Functioning Organisms in the Biosphere," and "Patterns in the Biosphere." The organization is both sequential and cumulative.

The student's textbook contains five sections, which are divided into 25 chapters. Each chapter begins with an introduction and is followed by major headings. Guidepost questions are keyed to a major idea within the major heading. Also included are self-review questions, end-of-chapter summaries, application questions, problems, and suggested readings. Laboratory investigations are integrated with each chapter. Information is also provided about careers and research in biology and technology. Appendixes include material on laboratory safety and procedures.

The annotated *Teacher's Edition* includes introductory chapters on content reading and study skills as well as information about planning ahead, guidelines, objectives, and tactics. Lists of audiovisual materials and software are also provided. Teacher's material and answers to questions are located next to each investigation.

The ***Student Study Guide for Biological Science: An Ecological Approach*** includes activities keyed to each chapter. These activities focus on communication skills, science skills, and general cognition skills. Laboratory safety procedures are also included.

The ***Teacher's Edition, Student Study Guide for Biological Science: An Ecological Approach*** is a reprint of the student's edition with annotations which contain students' possible responses, skill objectives, and teaching directions.

Other components are:

Computer Disk of Test Items
Resource Book of Test Items
Teacher's Resource Book

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*BSCS represents *Biological Sciences Curriculum Study.*

PUBLISHER	TITLE	COPYRIGHT
Merrill Publishing Company	***Biology: Living Systems***	**1986**

Biology: Living Systems is a first-year biology program for high school students of average ability. The program uses the systems approach to emphasize the unity that exists among the wide diversity of life forms. Students study a variety of organisms that carry out the same basic functions.

Topics are organized according to the following major themes:

1. Energy is required to maintain living systems.
2. Living systems require homeostasis.
3. Functions of living organisms are integrated.
4. Organisms interact with each other and their environment.
5. Traits of organisms are determined by heredity and environment.
6. Evolutionary relationships are the basis of taxonomy.

Special features include advances in biology, biographies of biologists, and laboratory investigations. Appendixes cover classification, scientific measurement, respiration and photosynthesis, and careers related to biology.

The *Teacher's Annotated Edition* provides planning help, outside resource references, and answers to textbook questions along with teaching suggestions.

The laboratory manual, *Laboratory Biology: Investigating Living Systems*, provides over 80 options for activities. Skill emphasis includes careful reading of experimental procedures, accurate data collection and interpretation, and graphing.

The *Teacher's Annotated Edition, Laboratory Biology: Investigating Living Systems* outlines teaching strategies and safety guidelines. Instructions for care of living organisms and for preparation of solutions for laboratory use are also included.

Other components are:

Biology: Living Systems (teacher's resource book)
Computer Test Bank
Probing Levels of Life: A Laboratory Manual, Pupil's Edition and
  Teacher's Annotated Edition (nonconsumable laboratory manual)
Transparency Package

The *Biology Living Systems* program has been revised and updated and is now available in a new 1989 edition.

PUBLISHER	TITLE	COPYRIGHT
Prentice Hall School Division **(Formerly CEBCO–Allyn and Bacon)**	***Biology: The Study of Life***	**1987**

Biology: The Study of Life is intended for students in grades nine and ten. The textbook contains eight units, each relating to a particular theme in biology. Each unit is divided into chapters, which, in turn, are divided into sections. Each section focuses on the development of one or two major concepts. Special features include information about the practical aspects of biology as well as descriptions of advances in the field and of career opportunities. Each chapter concludes with a review section, comprehension activities, and questions to develop students' critical and creative thinking. The textbook also includes a variety of references.

The annotated *Teacher's Edition* provides general program information, teaching suggestions, resources, and answers to all questions. Strategies to assist teachers in adapting the content to a variety of students' ability levels are also included.

The *Laboratory Manual* contains 57 experiments related to topics covered in the textbook. Each experiment begins with a background discussion and statement of objectives. The experiments are structured with step-by-step instructions. Each laboratory includes questions which focus on analysis, interpretation, and critical as well as creative thinking.

In the teacher's edition of the *Laboratory Manual*, the pages of the student's *Laboratory Manual* are replicated with answers and observational notes. Each laboratory activity is preceded by a separate teacher's page that provides planning, background information, materials, preparations, and cautionary information.

Related available materials are:

Biology Critical Thinking Skills Transparencies
Computer Programs for Biology
Learning Program for Biology
Learning Program for Biology, Annotated Teacher's Edition
Teacher's Resource Book

An updated 1990 edition of *Biology: The Study of Life* is available.

PUBLISHER	TITLE	COPYRIGHT
Prentice Hall School Division	***Prentice-Hall Biology***	**1987**

Prentice-Hall Biology incorporates a phylogenetic approach in covering the content areas of a high school general biology curriculum. The intended audience is students in grades nine through ten.

To reinforce the concepts presented, a skills strand is integrated throughout the program. Visuals and special features illustrate the concepts as well as help to interpret the content. In addition, the special features in the textbook show how topics covered apply to everyday life.

The textbook is organized by chapters, which, in turn, are broken down into major sections and subsections. Each subsection covers a significant concept. Review questions are located at the end of each major section. Each chapter concludes with a "Laboratory Investigation" and "Chapter Review." The "Chapter Review" includes a summary of the major concepts, selected vocabulary, and a series of questions.

The *Annotated Teacher's Edition, Prentice-Hall Biology* includes a guide as well as answers to in-text questions. Suggestions for review, discussion, and activities are also included. A teacher's guide at the front of the book supplies additional information and is referenced throughout the textbook.

The consumable *Laboratory Manual, Prentice-Hall Biology* provides 48 additional laboratory investigations correlated with the chapters in the student's textbook. These laboratories are more extensive than those in the textbook. Each laboratory includes suggested supplemental activities.

The annotated teacher's edition of the *Laboratory Manual* provides guidelines and suggestions along with answers to questions in the student's laboratory manual.

Other available components include:

Biology Courseware
Biology Critical-Thinking Skills Transparencies
Dial-A-Test™ Service
Teacher's Resource Book
Test Bank with Software

An updated 1990 edition of *Prentice-Hall Biology* is available.

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PUBLISHER	TITLE	COPYRIGHT
Prentice Hall School Division	***Silver Burdett Biology***	**1986**

Silver Burdett Biology presents comparative systems within a phylogenetic framework. The intended audience is students in grades nine and ten with varying ability levels.

The textbook provides coverage of topics and skills inherent in a full year's survey course of biology. The skills strand emphasizes the development of critical thinking, problem solving, manipulative laboratory, and basic science skills. Each of the 38 chapters begins with a series of behavioral objectives. Each chapter is organized into several major sections, which, in turn, are divided into subsections covering a major concept. A review is provided at the end of the major sections and at the end of each chapter. Extension activities and bibliography are also presented.

The ***Teacher's Edition*** provides a guide plus annotated pages with background information, questions which stimulate critical thinking, teaching suggestions, and answers to questions posed in the student's textbook.

The *Silver Burdett Biology Laboratory Manual* provides 67 additional laboratory investigations correlated with the chapters in the student's textbook. Each laboratory includes background information, objectives, step-by-step procedures, diagrams, safety alert symbols, and further investigation information. Answer sheets with prelaboratory questions, space to record data and observations, and conclusion questions are also included.

The annotated teacher's edition of the laboratory manual provides guidelines and suggestions as well as answers to the questions in the students' edition.

Other components are:

Biology Color Overhead Transparencies and *Biology Courseware*
Computer Test Bank with *Software* and *Dial-A-Test*™
Teacher's Resource Package

A new edition of this textbook is available, titled *Biology: The Living World*, 1989.

PUBLISHER	TITLE	COPYRIGHT
Scott, Foresman and Company	***Scott, Foresman Biology***	**1988**

Scott, Foresman Biology is a comprehensive high school biology textbook intended for students from grades nine through twelve.

The textbook is organized into ten units and 28 chapters. Features such as "Using Technology" and "Issues in Biology" focus on the relationship between science, technology, and society. Review questions are located at the end of each lesson, while a hands-on activity in each chapter provides opportunities to develop process skills and reinforce concepts.

The annotated *Teacher's Edition* offers background information and teaching tips. "Advance Planning" suggestions and references occur at the beginning of the units and chapters. An insert at the front of the book provides an optional demonstration to introduce concepts for each chapter. Enrichment and reinforcement suggestions extend and supplement the lessons.

The *Laboratory Manual, Scott, Foresman Biology* provides additional activities correlated with the chapters in the student's edition. Scientific procedures and laboratory safety are presented. "Going Further," an optional feature at the end of many laboratories, offers additional investigations.

The *Teacher's Edition, Laboratory Manual, Scott, Foresman Biology* provides teacher's notes in the margins of the student's pages. The notes present extra background information, teaching strategies, extension questions, and enrichment activities.

Other components are:

Biology Courseware Series
Study Guide
Teacher's Resource Book

PUBLISHER	TITLE	COPYRIGHT
Globe Book Company, Inc.	***Pathways in Biology***	**1979**

Pathways in Biology provides a full year's life science program, presenting a systemic approach. The classification section is based on three kingdoms: animals, plants, and protists. Chapters within the textbook are divided into short sections that present topics at an appropriate reading level to aid students in learning important life science concepts. The textbook also includes illustrations, photographs, investigations, a glossary, and an index as well as review material in each chapter.

The *Teaching Guide to Pathways in Biology* is a softcover book that includes the philosophy of the program as well as suggested teaching strategies and motivational activities for each chapter. Answers to the questions in the student's textbook are also provided in the *Teaching Guide*.

The *Pathways in Biology Laboratory Manual* is available to supplement the student's edition of *Pathways in Biology*. Included in the manual are 47 investigations, 39 of which are designed for use in the classroom and in the science laboratory and eight of which focus on ecology.

A separate teaching guide is available for the *Pathways in Biology Laboratory Manual*. The teaching guide to the laboratory program provides teachers with background information on the investigation, suggested teaching demonstrations and strategies, and expected outcomes for each investigation. In addition, a laboratory-by-laboratory listing of required materials, information concerning the proper use of laboratory equipment and apparatus, and information regarding safety in the science laboratory also are provided.

A new phylogenetic textbook, *Globe Biology*, will be available in July, 1989.

PUBLISHER	TITLE	COPYRIGHT
D. C. Heath and Company	***Heath Life Science***	**1987**

Heath Life Science, 1987, provides a phylogenetic survey of the five kingdoms (moneran, protist, fungus, plant, and animal), with a special emphasis on ecology. This textbook is intended for use with middle grade students; however, it is also used with less prepared students at the high school level.

Textbook features include:

- Structured lessons beginning with a description of what the student will be expected to learn and closing with study questions which reflect the initial objectives
- Activities, generally two per chapter, ranging from paper and pencil to laboratory-based experiences
- Chapter review items from the recall level through the analysis level
- Special highlights with information about careers, biographies, and science and technology

Each lesson in the expanded format of the *Teacher's Edition* includes a variety of teaching strategies. Suggestions for reinforcing the content and for extending the lesson to other subject matter areas are provided at the end of each lesson.

The *Heath Life Science Laboratory Manual* provides a variety of laboratory activities. Two laboratories per textbook chapter are designed to be done in a typical middle school laboratory setting. The need for special equipment or materials has been minimized to coincide with normal laboratory facilities at this level.

The *Heath Life Science Laboratory Manual, Teacher's Annotated Edition*, contains a master list of materials needed for the laboratory experience as well as an extensive section on safety.

Other components include:

Heath Life Science Computer Test Bank
Heath Life Science Evaluation Program
Heath Life Science Software
Heath Life Science Teacher's Resource Binder

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Publisher	Title	Copyright
Holt, Rinehart and Winston, Inc.	***Holt Life Science***	**1986**

Holt Life Science is a comprehensive science textbook intended for ninth grade students.

Each chapter has a five-part format that contains objectives, motivation, concept development, a summary, and questions. Basic science process skills are emphasized as well as content.

Special features include "Compute!" which explores how to use computers to learn how science affects everyday living. "Careers in Science" features job and career opportunities.

The *Teacher's Edition* provides teaching strategies as well as a pacing chart, a section on safety in the science classroom, reinforcement/practice activities, and answers to questions.

Exercises and Investigations for Holt Life Science is a laboratory manual in a consumable format. It contains 22 laboratory activities which are closely correlated with the student's textbook. Each laboratory focuses on a specific science skill. Enrichment information, which is intended to extend a student's understanding of the content, is included with each "Laboratory" and "Review."

The *Teacher's Edition, Exercises and Investigations* provides teaching hints for each laboratory. "Safety Symbols and Guidelines" are listed as well as materials required for the laboratories in each chapter.

Other components include:

Test Bank (computerized)
Tests (duplicating masters)
Teacher's Resource Book

PUBLISHER	TITLE	COPYRIGHT
Kendall/Hunt Publishing Company	***Biological Science: Patterns and Processes***	**1986**

Biological Science: Patterns and Processes is a high school science textbook designed for learners who are not experiencing success in school.

The textbook contains five units of study presenting five major biological topics selected for their critical importance in human life: "Ecological Relationships," "Energy Relationships," "Reproduction and Development," "Human Genetics," and "Evolution." Ideas and concepts within each unit are presented in small, sequential steps. The laboratory orientation of the textbook is intended to involve students in the scientific process. The textbook is softbound; pages are perforated and three-hole punched.

The teacher's edition contains, in addition to the entire student's textbook, introductory discussion questions, classroom demonstration ideas, and suggestions for homework assignments. Desired answers to discussion questions and completed versions of the graphs and charts are also included.

Another component related to this program is the *Teacher's Resource Book/Test Item File*.

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Publisher	Title	Copyright
Merrill Publishing Company	***Biology: An Everyday Experience***	**1988**

Biology: An Everyday Experience is a high school biology program for noncollege-bound students with deficiencies in reading skills.

The content covers the complete range of basic biology topics. The vocabulary requirement has been reduced to meet the needs of students. Two laboratory activities are integrated with each chapter, and each activity is designed to be completed in one class period. The textbook includes special features on careers and current research.

The teacher's edition (in an oversized format) includes teaching ideas, performance objectives, unit and chapter overviews, planning charts, background information, and tips for preparing the laboratory activities in the textbook. Also included are optional reteaching alternatives, enrichment suggestions, and extension activities.

Biology Laboratory Experiences, a laboratory manual, provides over 60 additional activity options in a consumable format. The laboratories require simple equipment, few solutions, and few live specimens. Some of the laboratories use model building; some use simulations.

The *Teacher Annotated Edition, Biology Laboratory Experiences* provides a guide which includes teaching strategies and materials lists. Annotations include teaching tips, answers to questions, sample data, drawings, and alternative procedures.

Other program components are:

Computer Software Test Generator
Review Guide (focuses on improving reading and study skills keyed to the student's textbook)
Review Guide, Teacher Annotated Edition
Teacher Resource Book
Transparency Package

PUBLISHER	TITLE	COPYRIGHT
Merrill Publishing Company	***Focus on Life Science***	**1987**

Focus on Life Science is designed as an introductory life science course to meet the needs of students in grades six through nine, performing at various ability levels.

The textbook is divided into seven units that are further divided into 24 chapters. Unit One (chapters 1 through 4) presents the nature of life as distinct from the characteristics for the nonliving. The scientific methods used to study organisms are also covered. Unit Two (chapters 5 and 6) identifies classification and functions of simple organisms. Unit Three (chapters 7 through 9) presents the classification, structure, and function of plants and their relationship to soils. Unit Four (chapters 10 through 13) presents a discussion of animal behavior and the features that separate the different animal phyla. Unit Five (chapters 14 through 18) focuses on a study of the human body and related health habits. Unit Six (chapters 19 through 21) covers general principles of heredity and evolution. Unit Seven (chapters 22 through 24) deals with the environment and human interaction with the environment.

The *Teacher Annotated Edition* contains planning guides and ideas for classroom instruction. All laboratory activities have preparation notes and answers to the questions.

The student's edition of the laboratory manual, *A Learning Strategy for the Laboratory*, contains over 60 different laboratory activities.

The teacher's edition of the laboratory manual provides answers to laboratory activities plus suggestions for quantities of materials to use.

Related available materials include:

Chapter Review Software
Evaluation Program (spirit duplicating masters)
Life Science Skill Cards
Review and Reinforcement Guide (teacher's edition and student's edition)
Teacher Resource Book
Test Generator Software
Transparency Package

The *Focus on Life Science* program has been revised and updated. It is now available in a new 1989 edition.

PUBLISHER	TITLE	COPYRIGHT
Scott, Foresman and Company	***Scott, Foresman Life Science***	**1987**

Scott, Foresman Life Science presents science concepts appropriate for average seventh through tenth grade students.

Each of the 24 chapters begins with prereading questions, keyed to the lesson subheads, which, in turn, relate to the lesson review questions. Laboratory safety guidelines are stated in Chapter 1 so that students learn proper procedures before becoming involved in activities. Special features include two activities in each chapter: "Issues," which explores the social implications of scientific endeavors, and "Did You Know?" which expands the lesson content. The review section at the end of each chapter includes extra research problems and questions which call for critical thinking.

The front of the annotated teacher's edition provides an insert with an optional demonstration that may be used to introduce the content for each lesson. "Advance Planning" suggestions are located at the beginning of each unit.

The *Scott, Foresman Life Science Activity Guide* offers additional activities (spirit duplicating master format) for each of the chapters. The activities reinforce or expand concepts presented in the textbook. The materials and equipment required for each activity are minimal.

The teacher's edition of the *Activity Guide* provides overprinted answers on pupil's pages that have been reduced, a chapter-by-chapter materials list, and a master materials and equipment list.

Other components are:

The Science Square-Off (a software package)
Study Guide
Teacher's Resource Book

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This publication is one of over 650 that are available from the California State Department of Education. Some of the more recent publications or those most widely used are the following:

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